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# Analysis on the Integration of College Student Management and Students' Ideological and Political Education

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**Abstract:** At present, it is difficult for most colleges and universities to integrate ideological and political education with student management, which has a negative impact on the level of ideological and political education and student management in colleges and universities. Based on this, this paper analyzes and proposes a strategy for the integration of ideological and political education and student management in colleges and universities, to comprehensively improve the level of talent training in colleges and universities. By actively creating a harmonious and orderly campus culture, using the powerful functions of multimedia and network technology to enhance students' subject awareness, and to guide students' negative states, we can strengthen the management of students from all aspects, all-round and multi-faceted carry out ideological and political education for students.

**Keywords:** College Student Management, Ideological and Political Education

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## 1. INTRODUCTION

In the curriculum education system of colleges and universities, ideological and political education occupies an important position and has a certain positive impact on the future development of college students. The effective combination of ideological and political education work and student management work in colleges and universities can not only comprehensively improve the level of ideological and political education in colleges and universities, but also improve the working mechanism of student management and cultivate all-round development talents. The comprehensive management of students in colleges and universities is largely a process of ideological and political education in teaching. Only by combining student management with ideological and political education can we improve the level of academic management, further promote the efficient development of ideological and political education and achieve a win-win situation. the goal.

On this basis, this paper explores the integration and development of college student management and ideological and political education, in order to quickly improve the quality of college teaching, make up for some deficiencies in college student management and ideological and political education, and improve the overall quality of students, to lay a solid foundation for college students to truly become the pillars of the motherland in the future. Ideological and political education and student management work have commonality, and the fundamental goal of the two is to promote the development of students' comprehensive quality.

Because contemporary college students come from all corners of the country, personal living habits, learning concepts, knowledge levels, and parental education differences vary greatly. Life behavior, establish a scientific life platform for students. On this basis, tell students the correct ideas and values, so that students can distinguish right from wrong and understand right from wrong. The student management work should change the working mechanism of "emphasizing management and ignoring guidance" and take guiding students to form correct values as the core goal. Ideological

and political education in colleges and universities bears the important responsibility of ideological guidance, and its position in student management must be strengthened.

To this end, relevant systems can be formulated to require managers' management behaviors to conform to the norms of ideological and political education work. This can not only restrain the management behavior of managers, but also provide institutional support for the development of student management work under the guidance of ideological and political education. The idea of student management and its management methods are single and outdated. After the current college freshmen have gradually ushered in the millennium, their thinking is more active. How to improve their recognition of ideological and political courses requires finding new methods and new paths to achieve better results in student management. Ideological and political education is not only a compulsory course for students' quality education, but also an important way to cultivate high-quality citizens. At present, as far as the normal state of student management is concerned, due to the continuous advancement of information technology, the channels for students to obtain information are constantly increasing, and the ideological and political conditions of many college students have undergone great changes. Traditional teaching methods are difficult to guarantee the limitation of ideological and political education work in colleges and universities, which leads to the unsatisfactory progress of this work.

## 2. THE PROPOSED METHODOLOGY

### 2.1 Problems Existing in College Students' Ideological and Political Education and Student Management

Under the background of the rapid development of multimedia informatization, it is necessary to strengthen the ideological and political work and student management of college students in an all-round way, which has become an urgent problem to be solved. The management of college students can be carried out in many ways, and the educational concept can be better infiltrated in the study and life through a

variety of activities. At the same time, instill some positive ideological and political concepts in students' daily study and life, moderately guide college students' ideological values and outlook on life, let them establish correct outlook on life and values, and achieve the goal of cultivating new talents in society. Ideological education focuses on guiding students' thinking. Most of the course content is vague and theoretical knowledge that does not conform to students' life experience, such as patriotism and social responsibility. These are ideas that students cannot touch in their daily lives.

In the final analysis, student management work is an administrative work, which has a clear system and strict work requirements. If students abide by the school rules and regulations, the purpose of student management work can be achieved. From an educational point of view, although ideological and political education and student management work are both content to promote the development of students' comprehensive quality, there is currently no unified direction for the two. Ideological and political education focuses on ideas, while student management focuses on management practice. If the two cannot unify their goals, they will not be able to form a strong educational force, which can bring positive influence and correct guidance to students. For a long time, theoretical indoctrination has been the main strategy of ideological and political education in colleges and universities.

Under this strategy, although students have learned a lot of ideological and political knowledge, their level of understanding and application is not satisfactory. In the context of the new era, if the student management work still follows such a traditional approach, it will be difficult for ideological and political education to effectively play its ideological guiding role. There are many practical cases in the management of students. Ideological and political teachers should be good at using these real cases in the teaching process to stimulate students' enthusiasm for learning and better integrate theory and practical teaching, so that students in the process of solving practical problems, internalization of ideological and political theoretical knowledge can be realized, and students' emotional expression can be driven, to help students better solve problems in a targeted manner. While promoting the improvement of students' ideological and political achievements, they can also let students make better use of relevant ideological and political knowledge, to realize the integration of theoretical knowledge and practice and promote the better development of students.

First, the purpose of colleges and universities to implement management on students is to enable students to maintain positive ideas and correct values and outlook on life, and the ultimate goal of ideological and political education is to correct students' behavior habits and cultivate a positive outlook on life. The goals to achieve are common. In the specific student management measures, ideological and political education is actively integrated, and the two are perfectly integrated to achieve a win-win situation. Both education and teaching work and student management work need to serve students. Therefore, colleges and universities need to adhere to the people-oriented principle when integrating ideological and political work with student management work. As the main object of teaching, students are also the main body of school life and learning.

## 2.2 Specific countermeasures for the integrated development of student management and ideological and political education in colleges and universities

It is necessary to integrate humanistic care into management, implement people-oriented in ideological and political education, and respect students' physical and mental development needs from both education and management. In the traditional college student management, students are in a passive position and constrained by the system, so it is difficult to fully release their nature. Therefore, in the integration of ideological and political education and student management, the school can actively return the supervision power to students, so that students can change from passive to active actively and consciously participate in the process of ideological and political education and management. Pay attention to the shaping of cultural environment and consolidate the humanistic foundation of student management. For ideological and political education to achieve satisfactory results, it should not be limited to the classroom, but should be expanded to a wider range. For example, the essence of ideological and political education can be integrated into the construction of campus culture, so that the correct world outlook, outlook on life, and values can be diffused in every corner of the campus like spring breeze and rain, and guide students to correct their thinking and improve their self-cultivation in a subtle way. Due to the continuous development of new curriculum concepts and quality education, new changes have taken place in the requirements for college students, and more attention has been paid to the improvement of the overall quality of students.

The construction of the ideological and political team is urgent, and the quality of teachers themselves is constantly improved, to give full play to the power of role models in the teaching process. Through the guidance of relevant teaching content, teachers let students conduct in-depth exploration of relevant theories, so that in the whole process of independent learning, students can deeply study relevant knowledge and theories, and then help students establish correct three views. In turn, improving students' self-management and self-adjustment abilities will help students actively face difficulties in life and work in their future study and life, thereby promoting the healthy development of students' physical and mental health. College students are the backbone of my country's future cultural construction and a new type of reserve talent. With the development of society, there is a trend of diversification, which has a great impact on the ideological concepts of college students. The ideological concepts of college students have deviated. In the measures of behavior habit management, ideological and political education work must be integrated as a theoretical support, to correctly guide students' behavior norms, so that they can restrain their behavior according to the rules and form good habits.

It corrects the ideological deviation of the students and promotes the active management of the students at the same time. Universities need to pay attention to the functions of ideological and political and student management. For example, they can use ideological and political education to manage college students in real time, pay attention to the psychological state and ideological dynamics of students in the process of ideological and political education, and pay attention to students' true reflections on ideological and political issues.

Real-time management is carried out according to the most real thoughts of students, and from the perspective of caring for students, the management is more humanized, so that students are willing to accept student management work. Counselors need to play their own management functions, investigate students' difficulties in life and study and help students solve them during the ideological and political impact on students. Let students form the courage to face difficulties and dare to break through their own ideological and political qualities. In such a cultural environment, student management can be more humane, and the formulation of management strategies will also follow the people-oriented concept, rather than management for the sake of management. At present, the construction of campus culture should also pay attention to taking network culture as a key project, which can not only guide the healthy development of campus network culture, but also provide more support for enriching student management methods.

### 3. CONCLUSION

In general, thinking about the integration and development of student management and ideological and political education in colleges and universities can well solve some problems in the current student management and ideological and political education, break through the limitations of traditional teaching models, and give full play to the leading role of teachers is to clarify students' learning goals, enhance students' learning subjective initiative, and solve the problems that are not conducive to the combination of theory and practice in traditional teaching, so as to better implement specific cases and continuously improve students' practical use of medical knowledge through various methods and means to improve professional ability and thinking level, strengthen team building, apply the ability to practical education, and truly combine academic management and ideological and political education perfectly, so that every student can grow into a qualified student of new talents.

### 4. ACKNOWLEDGEMENT

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# Improvement and Innovative Countermeasures of The Education Management System of Colleges and Universities Under the Background of Education in the New Era

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**Abstract:** Compared with the rapid development of educational technology, the management system of educational technology in colleges and universities is obviously lagging and uncoordinated. The backward management system not only wastes precious educational resources, but also hinders the development of educational technology itself in colleges and universities. The article starts from the historical evolution of the educational technology management system in colleges and universities. Analyze the problems existing in the current management system and the causes behind the problems, and on this basis, put forward suggestions and strategies for improvement from the aspects of organizational restructuring, establishment of new operating mechanisms, and team building.

**Keywords:** innovative countermeasures, education management system, new era

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## 1. INTRODUCTION

The rapid development of information technology provides an important technical basis for informatization to become a modern transformation of all aspects of social production and life. Colleges and universities, as the main front for the cultivation of outstanding talents in the future, are an important cornerstone of the country's prosperity and development. The innovation and development of the education management system in colleges and universities under the wave of informatization provides a new development idea for the cultivation of talents in colleges and universities. important part of. April 1978.

Comrade Deng Xiaoping put forward a call at the National Education Work Conference that "measures should be formulated to accelerate the development of modern educational means such as television and radio. This is an important way to develop education more quickly, better and more economically." Subsequently, the ministry of education established the audio-visual education bureau and the central audio-visual education center. The audio-visual education bureau and the central audio-visual education center are a set of teams with two functions and are administrative functional institutions with both administrative and service functions. In October 1981, the ministry of education issued the "notice on the current development of audio-visual education work", which clarified the names, tasks, staffing, and staff titles and remuneration of audio-visual education institutions at all levels. Provisions. thereafter.

Radio and television universities in various provinces and cities have been established one after another, and colleges and universities have also successively established audio-visual education institutions. They belong to different higher-level guidance departments and carry out audio-visual education work. In the new era, my country's higher education has made great progress, and colleges and universities have

made unprecedented achievements in personnel training. As an important guarantee for the orderly progress of teaching work in colleges and universities, the management of educational affairs in colleges and universities is the core of college management. The efficient development of information technology also provides new development ideas for the innovation and reform of the educational management system of colleges and universities. Only when colleges and universities actively seek new development and breakthroughs in the wave of the new era can they constantly adapt to the needs of new social development and truly realize the innovative practice development of higher education management system.

The school's audio-visual education center, computer center and network center are managed by the leaders of different departments. When the leaders of each department carry out the departmental education technology work, they only pay attention to how to reasonably allocate the resources of the department to ensure the work. The completion of the goal lacks comprehensive coordination and overall planning with the leaders of other educational technology institutions in the school. As a result, the current educational technology work in the school only stays in the state of maintaining daily operation, and it is impossible to consider overall issues. The innovative development of higher education management system is an inevitable move to improve teaching efficiency and quality. The education and teaching management system of colleges and universities is a knowledge- and information-intensive complex dynamic management system. The various information generated in teaching and management activities is a huge dynamic management system, and the information structure is very complicated.



## 2. THE PROPOSED METHODOLOGY

### 2.1 The Development and Innovation of the Educational Management System in Universities

Under the traditional education management system model, this information needs to rely on human power for data collection, statistical analysis, arrangement and other operations. The work efficiency is low and error prone. will become an obstacle to the modernization of education. The development of educational technology in colleges and universities, including the functions, positioning, and future development direction of educational technology institutions in colleges and universities, largely depends on the level of understanding of educational technology by the leaders of colleges and universities. Educational technology is a new interdisciplinary subject in colleges and universities, and the decision-making leaders of colleges and universities are seldom educated. I don't know much about educational technology, and I can't keep abreast of the development trend of educational technology.

Neglecting the value and status of educational technology in colleges and universities has led to the current confusion in the positioning of educational technology institutions in colleges and universities. The concept of informatization of education management in colleges and universities lacks necessary rationality and scientific. Under the background of education informatization, the innovation and development of university education management mechanism system should be based on the concept of service management for schoolteachers and students. However, the current reform of university management mechanism system often starts from the perspective of managers themselves, ignoring the service awareness and management concept for students, is not conducive to the individual development of students. College students are an important part of college education. In the stage of higher education, college students develop more independently physically and mentally. Currently, their understanding of the world is in the stage of exploration. They are easy to accept new things and are also easily disturbed by bad information from the outside world. Educational technology work in colleges and universities belongs to the category of teaching work.

Colleges and universities may establish a school education technology committee or leadership group composed of the vice president in charge of teaching, the academic affairs office, the equipment office, the finance office, the higher education research institute, the library, the educational technology institution, and the heads of each school and department. The person in charge of the educational technology institution Served as the director of the committee's office. The committee holds regular joint meetings to approve the educational technology development plan and annual work plan of the whole school, guide the development of educational technology work of the whole school, and coordinate the relationship between the educational technology institution and other departments in the school. The daily management work is entrusted to the educational technology institution. Clarify the specific goals of the innovation and development of the education management system in colleges and universities. The informatization development of the university education management system is an important link to complete the modernization transformation of university education and realize the digital campus under the background of education

informatization. Optimize and reorganize the management organization and management procedures to effectively improve the management level and management efficiency of colleges and universities.

### 2.2 Objectives of higher education management based on the concept of innovative education.

To this end, it is necessary to integrate the educational management information resources of colleges and universities through advanced informatization means, based on the creation of a teaching information management website suitable for the development of the school. On-the-job training for educational technology workers is a shortcut to improve the overall quality of the educational technology team. The training content includes educational technology theory, instructional design theory, teaching and learning theory, multimedia technology, network technology, etc. Due to the limited number of personnel in educational technology institutions in colleges and universities, it is difficult to carry out large-scale job training. The author believes that colleges and universities can rely on "educational technology training centers" to implement training in stages and batches for educational technology workers. To ensure the training effect, a hierarchical and topical training method can be adopted.

Taking the development of relevant teaching information management platform as the core and aiming at improving the level of education and teaching information management, an education and teaching information management platform suitable for the development characteristics of the school is initially established to improve the utilization efficiency of university information. At the same time, it is necessary to expand the application of university education management. The function is to guide and improve the education management mechanism of colleges and universities, to ensure the standardization and systematization of education management in colleges and universities, to provide teachers and students with higher quality services. The matrix educational technology organizational structure can share human and material resources among different functional departments. Improve the utilization rate of educational technology resources in colleges and universities. At the same time, the matrix educational technology organization structure has a flat management level. The procedures of decision-making and management are greatly reduced, and the service efficiency of the organization is improved. The traditional university education management system has a strong dependence and a serious tendency towards formalism, but under the background of education informatization, the traditional education management system can no longer meet the modern requirements of university teaching management practice.

Therefore, there is an urgent need to seek a new development path for the management mechanism of higher education. This innovative change includes two aspects: the structural change of the organization of the higher education management organization and the construction of an internal flexible management mechanism. The use of advanced information technology to promote the modernization of the education management system in colleges and universities can not only realize information sharing with the help of digital teaching resources, but also realize timely and accurate transmission of information in a fast and cheap way and promote the informatization and integration of teaching management links in colleges and universities. Modernization,

and can break through the boundaries of time and space, realize the instant acquisition and release of teaching information, provide teachers and students with more efficient and high-quality teaching resources, build an efficient information-based teaching environment and teaching service system, and then improve the information management ability and teaching efficiency of colleges and universities and teaching quality. The construction of an internal flexible management mechanism can implement changes in the management organization structure of universities from the perspective of the development of the times, fully implement the people-oriented management concept, promote the simultaneous improvement of internal and external conditions of the management mechanism system of universities, and fully improve the efficiency and consistency of the legal mechanism system, innovate the management mode of colleges and universities, and improve the level of education management in colleges and universities.

To avoid the status quo of "multi-center, small and comprehensive" educational technology institutions in schools, the school's audio-visual education center, computer center and network center should be concentrated in the unified educational technology institution of the whole school - the modern educational technology center. There are different working organizations under the functions. Under the leadership of the vice principal in charge of teaching and the school's education technology committee, the school's education technology center consists of five departments: the education technology department, the education technology teaching and research section, the network department, the experiment management department, and the office.

### 3. CONCLUSION

Colleges and universities should strengthen the construction of information management mechanism, rationally apply information technology for education, so that students can learn with the help of information technology and improve the learning effect. However, students' values will be affected by bad content on the Internet. It is necessary for colleges and universities to create a safe and reliable online learning platform, rationally apply network security technology, provide students with high-quality learning content, and provide good support for education management. Fully implementing the concept of innovative education to realize the innovation of higher education management is of great significance to the improvement of the quality and efficiency of school management. Colleges and universities should actively apply diversified measures, innovate education management, and better promote the comprehensive development of students.

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# Innovation and Practice of the Training Mode of Cultural Relics Protection and Restoration Talents in Undergraduate Teaching in Colleges and Universities

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**Abstract:** Because there is a big gap between the quality of cultural relics protection and restoration personnel training in colleges and universities and the development needs of cultural heritage, which seriously lags the development of the cultural relics protection industry. The education department should focus on the exploration and research of discipline concepts, professional settings, training models, and curriculum systems in the field of cultural relics protection and restoration higher education and form cultural relics restoration and cultural relics protection technology. Based on the development of cultural relics protection in the new era and aim at Corresponding countermeasures and suggestions are given for the above problems, which will lay a foundation for the follow-up research on promoting the construction of cultural relic restoration and protection professional talents in vocational colleges in my country.

**Keywords:** Cultural Relics, Protection and Restoration Talents, Innovation and Practice, Undergraduate Teaching +

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## 1. INTRODUCTION

Our country has a long history and numerous cultural relics. In 2005, the state administration of cultural heritage conducted a survey on the corrosion and damage of cultural relics in collections, showing that 50.66% of the cultural relics in China's collections were corroded to varying degrees, and nearly 20 million cultural relics were in urgent need of restoration<sup>1</sup>. The first national census of movable cultural relics carried out from 2012 to 2016 found that as of October 31, 2016, there were a total of 108,154,907 pieces/sets of movable cultural relics nationwide.

Nearly 40% of the cultural relics, about 40 million movable cultural relics, need restoration. In 2012, the State Administration of Cultural Heritage conducted a survey and statistics on the current situation of professionals in cultural and museum business institutions in 31 provinces, municipalities, and autonomous regions across the country. Among them, the total number of cultural relic restoration technicians (including cultural relic restoration, ancient building repair, and archaeological technicians) was 2,715, accounting for 10% of professional and technical personnel. 17.2% of the total number (15,786 people); only 2.4% of the total number of employees in the national cultural relics system (111,388 people) that year. The rapid development and application of information technology represented by computer and network technology is the foundation for the development of museums. And utilization provides new opportunities. In 2001, the 2001 international association of commodities association's conference regulations included the preservation of living heritage and digital creation behaviors into the scope of museums for the first time. This supplementary content just shows that digital technology has become increasingly important.

The development of digital technology to the present involves digital modeling, virtual restoration, digital management, digital display, digital copy storage, digital simulation, virtual reality, digital animation, digital composite image, Internet of Things technology, cloud computing and big data, etc. Technology can weaken the contradiction between the

protection of museum collections and the use of collections, and at the same time can make cultural heritage "invigorated", not only expanding the influence and inheritance of its material cultural heritage, but also bringing the intangible cultural things vividly. presented.

The digital museum is the concentrated embodiment of the research and application of digital technology in the field of museums. In addition, the protection of immovable cultural relics also puts forward higher requirements for restoration talents. The difference from the restoration of movable cultural relics is that the protection of immovable cultural relics often takes years and faces more natural hazards that are difficult to prevent. However, at present, my country's immovable cultural relics restoration and protection team is facing problems such as insufficient manpower, unreasonable structure, and unstable personnel.

The problem of insufficient manpower is common in both the restoration of movable cultural relics and the restoration of immovable cultural relics. According to the "Investigation Report on the Status of Cultural Relics Restoration Personnel", 92% of the 533 units that participated in the survey believed that cultural relics restoration personnel Insufficient equipment, 2,021 missing persons." According to the survey data, there are currently 58 colleges and universities across the country The relevant majors of cultural heritage protection have been set up, including archaeology, cultural relics and museology, cultural relics protection technology, architectural history, history of science and technology, as well as scientific and technological archaeology, cultural heritage management, cultural relics identification and restoration. According to complete statistics, the number of students in the school exceeds 17,000, of which the number of students with undergraduate education and above accounted for 34.9%, and the number of graduates reached more than 4,000 in 2015. The nature of employment units can be divided into government agencies, institutions, non-profit organizations, private Types of enterprises, foreign capital/joint ventures, etc.

## 2. THE PROPOSED METHODOLOGY

### 2.1 Status of cultural relics protection and cultural relics restoration talents

According to the above statistical data, private enterprises are the main force for employment in the restoration and protection of cultural relics. In 2013 and 2014, the employment ratio was about 30%, and in 2015 it reached 52.29%. An increase of about 5% over the previous two years. Table 1 2013-2015 Cultural Relics Restoration. It is particularly important to set up a museum digitization course or set up a digital museum course group. The needs of museum development under the current situation.

Since the digital museum is an interdisciplinary subject, in 2014, focusing on the diverse needs of the society for museum digital talents, following the development rules of museum digitalization itself, combined with the actual situation of the school, and on the basis of a large number of researches, the school of applied arts and sciences of Beijing union university in the department of cultural relics and museology. The digital museum module is set up in the training plan, focusing on the training of museum digital interdisciplinary talents. According to the professional catalog of the Ministry of Education, cultural relics protection technology is an interdisciplinary major that intersects arts and sciences, penetrates science and technology, and combines modern science and technology with humanities knowledge. The schooling period is four years. Through the statistical analysis of the training programs and training objectives of cultural relics protection technology majors in various universities, the cultural relics protection technology major mainly focuses on the research of cultural relics materials, research on cultural relics protection materials, preventive protection of cultural relics, preservation science, etc., and requires a lot of archaeology, history, museology, etc.

Physical and chemical knowledge such as college chemistry, college physics, and materials science. The course system of cultural relics restoration and protection is roughly composed of three parts: professional basic courses, skill support courses, and professional development courses. The course content is rich, and the support surface is large. The course content is set according to the distribution of major categories in the cultural relics industry, corresponding to the categories with the highest frequency in the market. The courses arranged in this way are most suitable for the industry, so that students can obtain the greatest course support during their schooling. Some colleges and universities have implemented "independent enrollment" and "five-year consistency" in parallel to optimize the reform of student sources, organically integrate living inheritance with cultural relic restoration and protection vocational education, and actively explore the reform of the modern apprenticeship professional talent training model. Through expert studios and other forms, while carrying out the teaching of cultural relics restoration, the relevant production techniques are disseminated.

By examining the status of talent development in cultural heritage protection in my country, we can see that the existing cultural heritage protection professional education concepts and talent training systems are obviously not suitable for and cannot meet the development of cultural heritage protection. On the one hand, it shows that the total number of professional talents in the existing cultural relics museum units is seriously insufficient, the structure is not reasonable, showing an olive-shaped situation, and there is a serious shortage of high-end compound talents and career-oriented

skilled talents; on the other hand, cultural heritage protection majors Education does not match the actual needs: cultural relics protection technology majors focus on the cultivation of scientific talents, which cannot solve the shortage of cultural relics restoration talents; the overall performance is that the industry has a low degree of openness. First, the requirements for academic qualifications are high. Most of the institutions employing cultural relics restoration technical skills in the cultural relics system are public institutions, and these units have high requirements for personnel education when recruiting personnel.

### 2.2 Innovative Countermeasures and Suggestions for the Training of Cultural Relics Restoration and Protection Talents

Cultural and cultural institutions above the provincial and municipal levels basically require a master's degree or above, and county-level units basically require a bachelor's degree or above. It is rare for professional and technical positions to explicitly recruit graduates from vocational colleges. The second is that the evaluation mechanism is not perfect. The cultural relics system determines the development of professional talents by relying on the evaluation of professional titles, and the professional title system itself has the disadvantages of only foreign language, computer, paper publication and other abilities as evaluation criteria, resulting in cultural relics restoration technology that has entered the cultural relics industry. Skilled personnel are not promoted smoothly in the industry, nor can they stimulate graduates' enthusiasm for career choice. Then there is the uneven distribution of qualifications. Most cultural relics restoration qualifications are issued to state-owned institutions. As a result, institutions with low thresholds for absorbing cultural relics restoration talents, such as social enterprises and private institutions, have insufficient business volume and cannot expand their business scale, which eventually leads to vocational schools. The loss of graduates.

Establish a cultural relic restoration talent training system with differentiated functions, build a multi-level and multi-type talent training system suitable for the development of cultural heritage and my country's national conditions, and avoid the phenomenon of homogeneity in talent training. Correspondingly, differences and pertinence should be reflected in subject positioning, professional setting, curriculum system, and personnel training levels. Because the cultural and museum industry has no direct role in promoting the economic development of the society, cultural and museum-related majors have always received relatively little attention and are regarded as "niche majors". The corresponding central and government management departments at all levels provide policy support, funding, labor security, labor status and treatment, supervision, and evaluation for cultural and cultural vocational education, which still cannot meet the development needs of cultural and cultural vocational education, especially for some private colleges. Their source of funds basically depends on the source of students, and the source of students is a major instability factor.

Due to the lack of support at the policy level, cultural relics restoration and protection majors have encountered many difficulties in the process of carrying out personnel training related work, resulting in practical problems such as unclear development goals, lack of standardized specifications, insufficient funding, and reduced number and quality of students. Higher education carries the training of high-end

interdisciplinary talents. "211" and "985" colleges and universities should pay more attention to the training of master and doctoral students, involving scientific research on protection, research on restoration materials, research on protection and restoration theory, research on preventive protection of cultural relics and protection for management studies, etc., the enrollment should be based on the background of science and engineering. Ordinary undergraduates should pay more attention to the cultivation of restoration talents at the undergraduate level, and at the same time cultivate certain detection and analysis capabilities, involving disease investigation, restoration, reproduction, and identification of cultural relics of different materials.

### 3. CONCLUSION

The transformation of education and the development of society also put forward the need to change the talent training mode. The existing training of cultural heritage protection talents seems to be able to meet the development needs of the cultural heritage industry in terms of the total amount, but in terms of professional structure, talent types, and talent quality, there is a big gap between them and the development needs of China's cultural heritage. It is imminent to promote the reform of the relevant education system and accelerate the construction of a training system for cultural relics protection and restoration applied talents. It is still necessary to find out a training model suitable for the development of cultural relics restoration and protection professionals through continuous practice, summary, and improvement, and form a good system circulation, fundamentally solves the shortage of professional and technical personnel in the restoration and protection of cultural relics in the industry, and provides talent guarantee for the development of cultural relics.

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# Research on the Integration of Production, Education, and Research in the Cultivation of Nursing Talents

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**Abstract:** "Industry-university-research integration" research on the ability training of senior nursing talents for the elderly, with the goal of cultivating ability-based, practical, and compound senior nursing talents for the elderly, taking community nursing care as the starting point, and focusing on "professional ability, practical ability, "innovative ability" is the main line, highlighting the characteristics of traditional Chinese medicine. Based on fully demonstrating the dialectical relationship between the various elements of nursing professional training, this study studies the nursing professional training model that meets the needs of the new era and the needs of social development, aiming to cultivate qualified builders and nurses for the new era of medical care successor.

**Keywords:** production and education, nursing talents

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## 1. INTRODUCTION

The report of the Nineteenth National Congress of the Communist Party of China pointed out that socialism with Chinese characteristics has entered a new era, and the main contradiction in our society has been transformed into the contradiction between the people's ever-growing needs for a better life and unbalanced and inadequate development. The transformation of the main contradictions of our society in the new era has put forward many new requirements for the construction of my country's economy, politics, culture, society, and ecological civilization, and has also brought new opportunities and challenges for the reform and development of various fields. The attitude and practice of the elderly the more positive the will. However, due to the limited hours and the influence of traditional teaching mode, nursing students have a poor grasp of aging knowledge, and the correct rate is generally lower than 50.0%, especially the psychological and social cognition of the elderly is the worst.

Nursing students generally report that they do not understand the elderly, that the development of elderly care is backward, and that the knowledge they have learned is incompetent [24]. In terms of work cognition, nursing students generally have misunderstandings about elderly care work, thinking that elderly care is life care, not only the work is complicated, but also the social status is low, and it is difficult to reflect the professional value. The "industry-university-research combination" education integrates theory and practice into personnel training in the whole process, it not only ensures the integrity of theoretical teaching, but also strengthens the pertinence of practical training. It is an effective education mode for cultivating talents with innovative spirit and technology application. And only a few nurses who graduated from rehabilitation nursing accept it. Other nursing staff have not received training before entering the post of elderly care through standardized and systematic nursing care.

In my country, there are only 4 research papers on training programs for elderly care personnel, including 1 paper on talent training objectives, 2 papers on curriculum setting research, and 1 paper on the construction of industry-university-research personnel training models. The supply of medical talents needs to rely on medical education, and medical education now covers 11 areas. Medical majors, 44 kinds of undergraduate majors, combined with social problems such as urbanization, aging and empty nests in the current economic and social development of our country, in a society where the weak links such as preventive health care, chronic disease management, rehabilitation and elderly care are more prominent against this background, the professional education of nursing in the medical discipline has been deeply concerned by the country, society and people.

From the national level, the focus of attention is whether the nursing professional education meets the political requirements of our country, and the experimental group adopts the "combination of production, education and research" program. Under the guidance of pragmatism education theory and constructivism learning theory, this program takes the cooperation between vocational colleges and pension institutions as the combination point, and closely revolves around "close integration of teaching and production, alternating cycle of practice and theory, and task-driven research". "Innovation runs through it", fully integrate the teaching resources and advantages of both schools and enterprises, so that nursing students can use the knowledge and skills they have learned in a real working environment, "learn by doing, learn by doing", and conduct research and innovation exploration, so that the combination of production, learning and research runs through the entire implementation process, while strengthening humanistic quality and highlighting the characteristics of traditional Chinese medicine.

## 2. THE PROPOSED METHODOLOGY

### 2.1 Status of training nursing talents

Have more excellent theoretical application and practical ability; secondly, real clinical experience can improve the ability of higher vocational nursing students to discover, analyze and solve problems in practice, cultivate comprehensive quality, and form an intuitive understanding of the elderly nursing profession. Therefore, "industry-university-research combination" education has become the best way to train senior nursing talents. It can not only realize the intellectualization, specialization, and ability of elderly care practitioners, but also improve the comprehensive quality of elderly care practitioners, promote the construction of elderly care personnel and talent reserves, and is also an important way to accelerate the organic integration of medical and health care and elderly care services. move.

Using the industry-university-research personnel training model for reference, this paper proposes a five-in-one elderly care personnel training program framework from three aspects: professional ability, innovation ability and practical ability. That is, with hospitals, community health service centers, and elderly care institutions as the direction, with schools as the foundation and scientific research institutions as the link, schools, scientific research institutions, hospitals, community health service centers, and elderly care institutions are organically combined into a whole, integrating science and technology. Development, personnel training and training, and medical care services are integrated to give full play to their respective advantages.

By sorting out the development plan of my country's health and family planning talents and the completion of stage goals in recent years, combined with the national strategy of building a healthy China, talents in various medical disciplines, especially nursing professionals, are in the fields of disease prevention, health care, treatment, and rehabilitation. Therefore, nursing professional education as a nursing talent training should reform the talent training mode in time to meet the needs of the country, society, and the public. The CTDI total score and the scores of each dimension of the nursing students in the experimental group before and after the intervention were compared and analyzed. The results showed that before and after the intervention, there were statistically significant differences in the CTDI total score and the scores of truth-seeking, open-mindedness, analytical ability, critical thinking confidence, and cognitive maturity ( $P < 0.05$ ), and the post-intervention scores were higher than those before the intervention.

"Learning while doing, doing while learning" and "Industry-university-research combination" education organically combine learning, practice, and scientific research, focusing on the cultivation of practical ability and professional skills of higher vocational nursing students. Therefore, the ability training program focuses on the comprehensive improvement of the professional ability of senior nursing students in elderly care and the comprehensive quality of elderly care and achieves the goal through two stages of training. Using the database of Chinese and foreign science and technology periodicals to conduct literature search, consult, collect, and organize relevant literature, analyze the current situation and development trend of domestic and foreign elderly care personnel training, understand the research content of domestic and foreign elderly care personnel training target system, curriculum setting, etc. The subject research provides relevant reference materials and theoretical basis. In the

training of nursing professionals, full-time teachers are the core, courses are the hub, and students are the main body. The three are related to each other and interact in dynamic adjustment. In other words, to achieve the proposed goal of talent training, teachers need to pass on their teaching ideas and teaching content to students with certain teaching methods through courses based on the characteristics of students through optimizing teaching design.

### 2.2 Application of industry-university-research integration in nursing personnel training

Among the three, teachers are not only the builders of the curriculum system, the executors of classroom teaching, but also the disseminator of advanced ideas, so they occupy a core position. Therefore, grasping the connotation construction of professional teachers is the key problem to be solved in nursing professional education. At the same time, although the correct rate of FAQ1 of nursing students in the experimental group was significantly improved after the intervention, it was still around the passing line, suggesting that there are still some deficiencies in nursing students' mastery of aging knowledge.

Through the analysis of the scores of each item, it is found that the three items with the lowest scores are mainly related to the psychosocial cognition of the elderly, namely Q23 "The elderly are more religious with age" (27.8%), Q7 "At least 10.0% of the elderly have long-term Living in nursing homes" (36.1%), Q3 "Most elderly people have no interest in sex and are powerless" (41.7%). To ensure effective, safe and scientific exercise, vocational nursing students should conduct a comprehensive assessment of the elderly, and can , physical fitness, heart rate during exercise, hobbies, and venue conditions, etc., properly adjust the amount and intensity of exercise, and comprehensively choose appropriate sports. Currently common exercises include walking, dancing, and traditional Chinese traditional Tai Chi, Ba Duan Jin, and Wu Qin Xi.

Based on literature review, from the perspective of social needs (mainly from the perspective of hospitals, medical schools, community health service institutions, pension institutions, scientific research institutions, etc.), investigate the current situation, ability, and training of elderly nursing talents, and form a five-in-one elderly care system. Nursing personnel training program framework. In the current domestic nursing professional curriculum system, few colleges and universities set up courses such as internal medicine, surgery, obstetrics and gynecology, and pediatrics. Due to the lack of clinical medical knowledge and ability reserves of teachers of nursing professional courses, coupled with the absence of clinical medicine curriculum, nursing students lack the ability to integrate medical thinking and clinical nursing services.

For example, the second group of nursing students found that the constipation of the elderly is very common through the personal practice of the elderly care institution and raised the health problem of "how to improve the defecation situation of the elderly". It encourages nursing students to think and analyze the causes of constipation in the elderly and related intervention measures from multiple angles and levels and choose the best nursing plan according to the actual situation of the elderly, and finally implement, evaluate, and report through the division of labor and cooperation of the group. You should avoid worrying and toil to nourish your temper and avoid overwork to protect your kidney essence.

Complying with the changing law of yin and yang and the time of work and rest in the four seasons of the year, "harmony between man and nature" and "corresponding between man and nature", can make yin and qi calm, yang qi secret and solid, and yin and yang coordinate. It is necessary to reasonably arrange the daily activities of the elderly, and adhere to the principle of moderation, so as not to "sit for a long time to hurt the flesh, lie down for a long time to hurt the breath, stand for a long time to hurt the bones, and walk for a long time to hurt the tendons".

Interviews were conducted with full-time teachers of geriatric care, the main content of the interviews included the current talent training objectives of the subject, curriculum system setting and its implementation effect, to understand the current situation of geriatric care talent training. Interviews were conducted with managers of employers on issues such as the demand for elderly care personnel and the treatment of elderly care personnel, to summarize the problems in the training of elderly care personnel and analyze the reasons, so as to provide a realistic basis for the study.

### 3. CONCLUSION

"Combination of industry, university and research " education highlights the educational concept of taking students' ability as the standard and focusing on students' practical operation as the goal. The goal plan for the training of senior nursing talents integrating production, education and research aims to lay a theoretical foundation for the formation of my country's senior nursing education training model, consolidate and improve nursing students' professional knowledge and skills related to senior nursing, and cultivate talents who can meet the development needs of an aging society. Elder care talents fundamentally promote the development of elderly care and relieve social pressure.

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# Traditional and Modern Technology Analysis of Paper Cultural Relics Protection and Restoration

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**Abstract:** Cultural relics are records of national history and civilization, inheriting historical culture and national spirit. Paper is one of the four great inventions of China. Paper products have appeared in the distant ancient times, and the text content recorded by paper cultural relics is of great value. However, since paper relics are prone to damage over time, historians have devoted themselves to restoring paper relics to obtain valuable historical records. The protection and restoration process should be continuously improved and innovated. Based on this purpose, this article discusses the traditional and modern methods of paper cultural relics protection and restoration, to provide help for relevant staff.

**Keywords:** Traditional and modern technology, paper cultural relics, protection, and restoration

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## 1. INTRODUCTION

With changes in atmospheric pollution in recent years, natural disasters such as smog, seasonal changes in temperature and humidity, rainy weather, high temperature and drought, and global warming have directly or indirectly affected the longevity of cultural relics. We know that the scientific management of collections is the key to prolonging the life of collections. In the face of practical problems and the safety of collections, collection administrators have a long way to go. How to make the cultural relics come alive and move while prolonging the life of the collection is a topic we often talk about, and it is also a mission we always keep in mind.

As collection custodians, we should take on this important task. Cultural relics are an important inheritance carrier of a country's history and culture, an important guarantee for the continuation of the national spirit, and even a historical and cultural resource that cannot be reproduced. The study of cultural relics is of irreplaceable significance to the study of our country's history, and it is an inevitable way and an important foundation for the development of modern socialism in our country. Cultural relics are prone to damage due to time and preservation reasons. After the cultural relics are mined, the protection and restoration of cultural relics must be carried out in time to ensure that the cultural relics can be perfectly preserved and passed on to future generations.

Through the protection and restoration of cultural relics, the complete inheritance of cultural relics can be realized to the greatest extent, and the damaged cultural relics can be repaired to a certain extent, and the charm of cultural relics can be re-bloomed. One of the reasons for the damage of paper cultural relics is that they are kept for too long. The main material of paper is cellulose, which is not conducive to long-term storage. After long-term storage, the cellulose is very likely to undergo oxidation reaction, resulting in yellowing of paper cultural relics, and it is easy to break when touched. Therefore, the paper cultural relics just unearthed should be treated with care to avoid secondary damage. Paper is mainly made of organic materials, and the production materials are closely related to the durability of paper. Due to the different papermaking processes, it has a greater impact on the life of the paper. Factors that cause paper cultural relics to

become diseased include temperature, humidity, light, insects, acidification, and human factors. Natural disasters will cause losses to varying degrees.

With the changes of the times and the baptism of the years, paper cultural relics are inevitably worn and aged, which aggravates the problem of paper cultural relics. It is very important to strengthen the protection and restoration of paper cultural relics. The application of microwave pest control technology is mainly to protect paper book resources, which is suitable for libraries and families. When paper is stored, the water content of paper books should be reasonably controlled not to exceed 8%. Books can be placed in a microwave oven for sufficient sterilization and drying before storage. This process only takes about 70 seconds to effectively sterilize and disinfect. When using this technology, ancient books contain a lot of pigments, and the binding is more sensitive to microwaves, which affects the protection and restoration of paper cultural relics. Microwaves are used to kill insects, and electromagnetic fields are used for heating. The pests are used as dielectrics to destroy the cholesterol in the pests and meet the needs of sterilization and disinfection.

## 2. THE PROPOSED METHODOLOGY

### 2.1 Traditional protection and restoration technology of paper cultural relics

Changes in temperature and humidity can easily cause damage to paper cultural relics. It is difficult to preserve paper cultural relics, and changes in temperature and humidity will have serious adverse effects on them, resulting in damage. The rise in temperature will cause the cultural relics to be damp and moldy, and the decrease in temperature will also destroy the fiber toughness of the paper, which will cause a serious decline in the fiber toughness of the paper cultural relics, resulting in a certain decline in the tensile strength of the paper, making the paper quality artifacts are damaged. Humidity changes will cause the text or paintings on the surface of paper cultural relics to fade, and excessive humidity will even cause serious damage to paper cultural relics such as mildew and rot. Moreover, excessive humidity will also cause many microorganisms to multiply in the paper, resulting in serious damage to cultural relics.

Excessive temperature and humidity will produce many microorganisms and insects. The damage of insects to paper cultural relics is huge. Since the raw material for making paper cultural relics is fibrous material, it is an environment suitable for the growth of insects. Paper cultural relics may also be corroded in ordinary storage environments. If the storage environment is poor, the damage of insects to paper cultural relics is almost devastating. Microorganisms have very low environmental requirements and can survive in any situation. Therefore, when the mold in the air reproduces on the paper cultural relics, it will corrode it, and it may also leave colored spots on it, making it difficult to recognize the characters. In practical application, microwave disinfection technology is mainly to protect paper book resources and is suitable for libraries and families.

When paper is stored, the water content of paper books should be reasonably controlled not to exceed 8%. Books can be placed in a microwave oven for sufficient sterilization and drying before storage. This process only takes about 70 seconds to effectively sterilize and disinfect. When using this technology, ancient books contain a lot of pigments, and the binding is more sensitive to microwaves, which affects the protection and restoration of paper cultural relics. Microwaves are used to kill insects, and electromagnetic fields are used for heating. The pests are used as dielectrics to destroy the cholesterol in the pests and meet the needs of sterilization and disinfection.

Multifunctional reinforcement glue is one of the most widely used protection methods at present. It can reinforce and protect cultural relics without affecting the color and texture of paper cultural relics. It has the advantages of simple configuration, convenient operation, and short cycle. Increased the life of paper cultural relics. Mechanical restoration technology refers to the use of paper and paste as the main restoration carrier when restoring paper cultural relics and books, and the use of pulp, screens, and paper-pressing grids for cultural relics restoration. This kind of restoration technology is also relatively complicated. During the restoration process, the restoration operation must be carried out in strict accordance with the restoration process to ensure that the paper cultural relics will not be damaged. Using modern technical means to protect and restore paper cultural relics includes two restoration methods: one is called original protection, which uses the paper itself as the main body for protection; the other is called regenerative protection, which uses the text content. The focus is on the retention of text messages.

## 2.2 Modern protection and restoration technology of paper cultural relics

As a cutting-edge technology, nanotechnology has broad prospects for practical application. Through the emergence of new nano-mold-proof paper, it is not volatile and can prolong the preservation life of paper files. Nano-calcium carbonate has corrosion resistance, aging resistance, and heat resistance. It is introduced into the protection of paper cultural relics and has heat resistance and anti-aging properties. In the practical application of regenerative protection technology, the information in the storage carrier is transferred to paper to realize the regenerative protection of paper cultural relics. The protection and restoration of paper cultural relics requires professionals to carry out digital processing. With the help of photocopying and publishing technology, the contents of paper cultural relics are copied and processed to achieve pre-protection, which helps to improve the effectiveness of the protection and restoration of paper cultural relics. In recent

years, with the continuous development of my country's science and technology system, nanotechnology has been greatly improved, and new nanomaterials have gradually appeared in the field of paper cultural relics restoration.

Nano-restoration technology is mainly through the application of nanomaterials, adding nano-materials to the paper of paper cultural relics, without affecting the color of the cultural relics themselves, to achieve anti-aging and heat-resistant treatment of paper cultural relics, thereby improving the strength of the paper carrier of paper cultural relics improves the quality of cultural relics and realizes the restoration of paper cultural relics. Nanotechnology is the main method of modern cultural relics restoration technology application, and it is also an important cultural relics restoration technology system in the new era, which plays an important role in promoting the development of cultural relics restoration and protection. Microwave insecticidal technology controls the humidity of paper cultural relics and protects and restores paper cultural relics by reducing the humidity. Before paper cultural relics are stored in the warehouse, they are sterilized in a microwave oven and fully dried, which can effectively improve the effect of cultural relics restoration. It takes a short time, usually about one minute to complete.

However, when performing microwave restoration of ancient books, we should pay attention to whether it affects the paper pigment and avoid microwaves from changing the color of the paper. The practical application of this technology is mainly to improve the reinforcement of fragile paper cultural relics in traditional mountings. It is mainly woven with the help of a single silk, sprayed with hot melt adhesive, and ironed with an electric iron to closely adhere to the paper. This kind of technology has outstanding advantages, simple operation, strong aging resistance of materials, and has considerable effect in the protection and restoration of paper cultural relics. At the same time, this method still has certain limitations. Although this method can realize the protection and restoration of paper cultural relics, the silk screen will cover it, which will affect the accurate recognition of characters, especially the characters with light ink. Recognition, the reflection of the silk screen will affect the accurate recognition of the text.

Comparing the traditional and modern protection and restoration techniques of paper cultural relics, it is found that the modern protection and restoration technology not only continues the advantages of traditional techniques, but also adds new technology components to achieve better protection and restoration effects. However, the use of modern technical means still needs to be further improved. For example, although the use of plasma deacidification can reduce the damage of acidic substances to paper, excessive accumulation of alkaline substances will also have a negative impact on the life of paper cultural relics. Therefore, the protection and restoration technology of paper cultural relics still needs further exploration.

## 3. CONCLUSION

To sum up, the protection and restoration of paper cultural relics can reveal the development of different historical periods, restore the essence of things, provide support for historical research, and at the same time realize the inheritance and development of excellent traditional culture, which is of great importance to the harmonious and stable development of society. enhancement. Cultural relics are the carrier of a nation's historical and cultural heritage, a cultural resource that cannot be reproduced, and is of great

significance to the transmission of national spirit. The protection and restoration of cultural relics is an inevitable way to realize historical and cultural research, and it is also a necessary measure to promote the development and inheritance of traditional culture in our country. It is of great significance to the development of national cultural undertakings.

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# Innovation and Practice of Accounting Teaching Based on Internet Big Data

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**Abstract:** : With the advancement of science and technology, Internet technology affects all aspects of people's production and life. The era of big data has arrived, and the field of education and scientific research has also been greatly affected. As an important position for cultivating talents, colleges and universities should keep abreast of the pulse of the times and innovate the concept of accounting education to meet the needs of society for talents. In this paper, the meaning of "Internet + big data" is combined with the current situation of accounting education in colleges and universities under the mode of "Internet + big data", and the difficulties faced by accounting education in colleges and universities under the mode of "Internet + big data" are analyzed, and the innovation strategy of accounting education in colleges and universities is studied. To give full play to the advantages of information-based accounting education, improve the level of accounting education, and cultivate excellent accounting professionals.

**Keywords:** Innovation and Practice, Accounting Teaching, Big Data

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## 1. INTRODUCTION

The purpose of "Internet +" is to make full use of big data to promote the development of traditional industries, realize the upgrading and transformation of traditional industries, and thus drive the development of emerging industries such as the digital economy. At present, my country's economic structure is continuously optimized, and emerging industries are developing well. The combination of "Internet +" and big data is conducive to promoting innovation and change. Therefore, accounting educators in colleges and universities should seize the opportunity to think deeply about how to use this model to promote the innovation of accounting education. First, there is no big data accounting course, and no attention is paid to the application of Internet technology.

In the process of innovating the accounting education model, some colleges and universities only build online education platforms or open online course teaching, and do not really take advantage of Internet technology and big data to promote the development of accounting education, nor consider the integration of "Internet + big data". "Effectively integrated into accounting education, so it can't really improve the efficiency of accounting education and can't ensure that the talents cultivated can truly meet the needs of society". In the traditional accounting education model, simply imparting the knowledge in textbooks to students has not played a role in diverging the role of learning, with the development of new technologies, the update of course content is very necessary. First, the development and maturity of accounting computerization has made the study of accounting informatization a new requirement for employment for accounting students.

With the development trend of informatization of financial work platforms, accounting students should not only stick to learning accounting knowledge, but the learning and mastery of interdisciplinary knowledge such as computers, big data, and model building is crucial for understanding and radiating the learning of accounting disciplines. Secondly, it is necessary to change the traditional teaching method, flip the classroom, exchange roles, and let students do more physical

examinations in accounting teaching. "Internet + Accounting" is an accounting activity under the Internet. It is a modern accounting based on the combination of accounting computerization and e-commerce ideas, using big data, cloud computing, and mobile Internet. From the birth of the Internet, and then through the budding development and growth, it is now more and more important to the development of all walks of life. For accounting work, since it is a carrier of data information, accounting work and the Internet are deeply integrated in many aspects.

At present, the manifestations of the "Internet + accounting" model mainly include enterprises use the ERP system to enter documents and generate electronic financial statements, which saves a lot of time for accounting data; supervision departments use the Internet's powerful cloud computing, cloud storage and other functions to carry out cloud accounting and accounting. Cloud audit. In the accounting teaching of colleges and universities, building a digital teaching platform can not only diversify the teaching mode and improve students' learning enthusiasm, but also use big data technology to enrich the teaching content and provide students with more educational resources, thereby optimizing accounting. Top-level design for education. Secondly, the development of the "Internet + big data" model has promoted the process reengineering of my country's big data accounting practice.

## 2. THE PROPOSED METHODOLOGY

### 2.1 The Impact of "Internet + Big Data" Mode on Accounting Education in Colleges and Universities

In this context, the specific accounting object system of big data accounting can divide the big data accounting process into three stages of data collection, processing, and output. Financial information, external environmental information and internal business information should be effectively integrated, and in the data two types of information, non-monetary and monetary, are included in the collection process. Accounting data processing should also give full play

to the advantages of Internet technology, effectively summarize, select, and identify data information, and mine the value of unstructured and structured data. At the same time, the output of accounting data should also show the characteristics of individualization, dynamicity, and differentiation, to realize the diversification of output forms and meet the needs of users' decision-making. Reengineering the big data accounting process will help optimize the allocation of accounting resources and further promote the development and application of cloud accounting. Learn new software related to big data analysis; master the big data technical knowledge required by accounting digitization; accept accounting data informatization, networking and intelligence.

What cannot be ignored is that in this environment, colleges and universities must meet certain requirements for the Internet environment. The website and link environment involved in the learning process must be safe, the database capacity for storing learning information must be sufficient; the digital education method must be a database that can load enough data and a healthy and safe financial platform for education. The smooth development of the work. The basic assumptions of accounting are the premise of accounting confirmation, measurement and reporting for enterprises at present, mainly including four aspects: accounting subject, going concern, accounting period, and currency measurement.

First, the accounting subject is supposed to delineate the spatial scope of various transactions or events to be accounted for by corporate accounting, and the development of the Internet has made e-commerce companies and Internet companies very common. Internet companies are companies without entities, and there is no fixed entity. The spatial scope and shape of the accounting subject are just a virtual accounting subject. This new type of accounting subject does not conform to the hypothetical category of the accounting subject, and the connotation of the accounting subject will continue to be extended. Secondly, the going-concern assumption assumes that the enterprise will not face bankruptcy or liquidation in the foreseeable future, and the operating activities of various virtual companies generated under the background of e-commerce face many risks, and the going-concern assumption is no longer applicable, updating the accounting practice process requires the combination of theory and practice. To solve this problem, colleges and universities can cooperate with enterprises when carrying out accounting education. Schools transport talents for enterprises, and enterprises provide practical opportunities for students, to achieve a win-win situation.

For example, in 2018, Debao College of Tianjin University of Commerce cooperated with Tencent Group to establish an "Internet +" college and opened majors such as cloud computing and big data financial analysis to train students with strong execution ability and adapt to the new accounting process. Professional talents have realized the organic combination of theory and practice and laid a good foundation for the future development of students. Under the guarantee of reliable infrastructure, it can conveniently and efficiently integrate Internet resources, collect data related to accounting education, and provide personalized information services to college teachers and students.

## 2.2 Discussion on the Innovation of Accounting Education Model under "Internet + Big Data"

Relying on Web3.0, colleges and universities can innovate the accounting education model in the Internet environment, provide one-stop service, and provide a solid guarantee for the development of accounting education and teaching activities. The application of the big data platform under Web3.0 can also facilitate accounting teachers to dynamically grasp the learning status of students, give timely help when students encounter problems, and evaluate students scientifically and in real time. Internet companies understand and contact students during the competition and determine the students' learning status and learning quality of accounting knowledge and skills, to achieve the purpose of "reserving" accounting talents in colleges and universities in advance. With the in-depth development of "Internet + accounting", the accounting objects of enterprise accounting continue to expand.

Traditional commodities can only be sold once, and the accounting method of input costs and output values related to historical cost accounting is no longer suitable for Internet companies. Internet companies mainly hold virtual assets. Virtual items can be sold repeatedly, and the cost of product duplication is very low. The value of virtual items greatly exceeds their original input costs. Currently, the value of virtual assets is mainly related to the future excess Profit related. The future net cash flow method fully considers the time value of money and the future profitability of virtual assets. If future net cash inflows can be reliably estimated, virtual assets should be measured using the future net cash flow method, which is more in line with the essence of accounting over formal principles. Only when the overall level of educators meets the requirements of the big data era can we cultivate talents that truly meet the needs of society. Therefore, relevant educators need to pay attention to scientific research while teaching, and persist in further studies, to continuously improve their own level.

In addition, in the teaching work, accounting educators in colleges and universities need to abandon the traditional teaching mode, use advanced technical means to optimize the teaching method, give full play to their leading position, and promote the progress and development of students. Thirdly, colleges and universities also need to reform and improve the accounting professional courses and accounting professional teaching. Ensure that accounting education keeps pace with the development of the times. When carrying out the design of accounting courses, we should combine traditional classrooms and online courses to broaden the learning path of students. Considering the particularity of accounting professional education, to ensure the progress and efficiency of teaching, it is necessary to improve students' ability to use the network, organize online course design training activities, so that students can better adapt to the "Internet +" accounting teaching mode. Construct a whole-process and dynamic evaluation system. To this end, the school can cooperate with relevant enterprises to train trainees. According to the usual learning situation assessment and school-enterprise cooperation interviews, select students who are suitable for the company's working methods and management concepts Enter the company for internship.

On the one hand, students can exercise their adaptability in accounting positions in advance and improve their employment competitiveness after graduation; on the other hand, enterprises can save the link of school recruitment and

select outstanding personnel from among the students who enter the enterprise for practical training, in the corresponding position. Financial personnel review and enter accounts in a unified manner. Various original vouchers need to be circulated and archived in various departments and relevant responsible persons in the whole process. Generally, enterprises conduct unified summary at the end of the month, resulting in a heavy workload for the financial department at the end of the month. In the "Internet + Accounting" environment, various original vouchers and accounting vouchers between internal and external enterprises have changed from written form to electronic form, and various original vouchers can be directly entered into the accounting information system by various departments that generate expenditures, such as procurement after the department enters the original information into the system after purchasing, the financial department only needs to review the original data in a unified manner, and it is no longer necessary for each department to submit the original voucher at a unified time.

### 3. CONCLUSION

With the advent of the era of big data, "Internet +" has had a huge impact on all walks of life, promoting the progress of society, and has an impact on accounting education in colleges and universities. Therefore, college educators must improve their own standards and optimize teaching. Model, do a good job in the top-level design of accounting teaching, and actively carry out school-enterprise cooperation, build an "Internet +" accounting education model, and at the same time build a professional teacher team, build an accounting online education platform, and optimize the design of accounting online courses, so as to effectively improve the effect of accounting teaching, promote the innovation and development of accounting education, and cultivate excellent accounting professionals needed by the society.

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# A New Idea of English Reading Teaching under the Guidance of Activity View

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**Abstract:** Based on the concept of English learning activities that point to the core literacy of the subject advocated by the "General Senior High School English Curriculum Standards", combined with specific teaching examples, through text-based, in-depth text and beyond-text learning comprehension, application practice, transfer innovation and other progressive activities that integrate language, thinking, and culture, explore and build a reading teaching model of "guiding, reading, appreciating, thinking, speaking, and writing". English classics under the perspective of English learning activities. Efforts to implement the new curriculum concept, promote the reform of ordinary high school education methods. An effective way to promote the improvement of reading literacy. Compared with other studies, this study conducts action research based on real reading classrooms, and obtains research results through qualitative and quantitative analysis, which can provide supplementary suggestions and references for English reading classroom teaching under normal conditions.

**Keywords:** English Reading, Activity View, Reading Teaching

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## 1. INTRODUCTION

Teaching under the guidance of the concept of learning activities is based on texts, in-depth texts to transcend texts, from language input to language output, and from low-level activities to high-level activities, providing a transformation for students' learning methods and teachers' teaching methods. An actionable path is provided. Among them, English reading class, as a key class in basic English education, is particularly important for enhancing students' English language learning ability. It is not only an efficient input mode of English language basic skills and knowledge, but also a core path to cultivate students' core literacy one. Teachers' teaching philosophy needs to be strengthened.

According to the interviews with teachers, most of the teachers have a basic understanding of the concept of core literacy because they do some regular training, but they only stay at the knowledge level. The teachers are basically vague about how to implement it in practice. When the author mentioned it comes to the concept of English learning activities, teachers also know little about it, let alone the six elements of course content. Adopt a variety of teaching methods and means to further build an integrated teaching model that is "led by themes, supported by texts, guided by activities, centered on students, and aimed at improving literacy" to guide students in activities. Learn language knowledge, develop language skills, understand cultural connotations, and apply learning strategies; guide students to analyze and examine the truth, goodness, and beauty of things and people, judge different values, and achieve a deep understanding of the theme. The organic integration of humanities implements the goal of cultivating students' core literacy in English.

Ren Zhou (2019) took 112 students from two classes in a high school in Miluo City as the experimental subjects. One experimental class adopted reading teaching based on the concept of learning activities, and a control class adopted traditional teaching. The results of the study show that the students in the experimental class perform better in the

application of learning strategies and the improvement of reading ability. There are problems with teaching design and methods. According to the interviews with teachers and the questionnaires of students, the author found that compared with traditional teaching methods, the current English teaching has been greatly improved. Teachers have basically changed the phenomenon of only focusing on grammar and vocabulary in traditional teaching and began to pay attention to the overall text structure and guidance to students' learning strategies, but there are still some problems, such as insufficient explanation of the cultural background of the theme, failure to meet students' needs for cultural knowledge, and few in-depth questions designed for students to think about. The understanding of the article is still only at the superficial level, and the language characteristics of the article and the emotional attitude of the author are rarely analyzed.

Although teachers sometimes create some situations, they are always derailed from daily life and cannot resonate with students. This time, Shandong Province senior high school English classics reading teaching excellent lesson demonstration activity was held in the second grade of school, which is a prefecture-level high school participating in the classic reading experiment. The English proficiency of students in school is obviously higher than that of county high school students. After one year of high school study, senior high school students have a high foundation of English language ability, develop good English study habits, basically form the ability to obtain information, process information, analyze and solve problems in English, and have a certain level of English thinking and expression skills are conducive to the smooth development of famous reading activities.

## 2. THE PROPOSED METHODOLOGY

### 2.1 View of English learning activities

Based on theoretical analysis and practical investigation, this study explores the cognition of junior high school English teachers on the concept of "English learning activity view" and takes reading teaching as an example to explore its practice. The research is carried out in accordance with the

following ideas: literature review - status quo Investigation—discovering problems—attribution analysis—optimization strategy. First, the author clarifies the background, purpose and significance of the research and establishes the research foundation by sorting out the relevant literature on "the view of English learning activities" at home and abroad. Secondly, based on the above-mentioned research basis, focusing on various research questions, taking junior high school English teachers in three schools as objects, and using research methods such as questionnaire survey, classroom observation and interviews, to conduct a targeted investigation on the current situation. First, it should be presented in the form of learning activities, which can not only reflect the learning process, but also emphasize the learning results. And the activities must be progressive and hierarchical and must conform to the cognitive rules of the students.

The first two goals belong to the category of learning and comprehension, the second goal belongs to the category of application practice, and the last two goals belong to the category of transfer and innovation. The three activities are progressive and gradually guide students to deepen their understanding and application of the text. In-depth discourse practical activities.

On the basis of learning and comprehension activities, teachers guide students to study the text in depth around the theme and meaning, form a new knowledge structure, carry out communication and learning activities such as description, interpretation, analysis, and judgment, and gradually realize the internalization of language knowledge and cultural knowledge. Consolidate the new knowledge structure, promote the automation of language use, and help students transform knowledge into ability. Applied practice activities mainly include in-depth discourse learning activities such as description and interpretation, analysis and judgment, internalization, and application. This is the process of transforming knowledge into competence. The "New Curriculum Standards" lists language ability, cultural awareness, thinking quality and learning ability as the core literacy of English subjects, and junior high school English teachers should also aim at cultivating this literacy in classroom teaching. Therefore, the objectives of classroom activities mainly use these four indicators to examine the cognitive situation of teachers.

From the point of view of the minimum value, the minimum value of index 3 is 1, from the point of view of the number of minimum values, the number of minimum values of index 4 is the largest, with a total of 7 samples. From the point of view of the maximum value, the maximum value of all items is 5; From the point of view of the average level, the average value of index 4 is the lowest, which is 4.48, and the average value of index 2 is the highest, which is 4.68. The overall average range is 4.48-4.68, indicating that the overall level is at a relatively high level; The highest standard deviation of 3 is 0.681, the overall degree of dispersion is low, and the data differences are not large.

## 2.2 Reading teaching of English classics in senior high school from the perspective of English learning activities

Whether it is the establishment of evaluation goals before evaluation, the selection of evaluation content and methods, or the implementation of evaluation programs, we should take students as the center and fully consider various factors of students. We should try to make it conform to the students' cognitive style and age characteristics and try to make it

related to the students' daily life, so that students can fully express themselves. At the same time, the individual differences of students should also be considered. Teachers can formulate different evaluation standards and methods according to the level of different students. Based on the new knowledge structure, through independent, cooperative and inquiry learning methods, comprehensively use language skills, carry out multi-dimensional thinking, creatively solve problems in unfamiliar situations, rationally express opinions, emotions, and attitudes, reflect correct values, and achieve deep learning, to promote the transformation of ability to literacy.

Transfer and innovation activities mainly include reasoning and argumentation, criticism and evaluation, imagination and creation, and other learning activities that go beyond text. With the progress of classroom reading teaching stage, teachers' classroom activities also change accordingly. First, in the pre-reading stage, text-based learning comprehension activities should be designed. Although 3 of the 18 reading lessons have flaws in the activities designed in the link of introducing themes to pave the way for language knowledge, most of them meet the requirements of the concept of "English learning activities" for pre-reading activities. The background knowledge of students is activated in teaching, which lays the foundation for students' learning activities. Secondly, the middle reading stage is the central part of reading teaching. It should gradually go deep into the text, from learning comprehension activities to application practice activities. It is mainly divided into three levels. However, there are still 27% of people who can only sometimes understand and use knowledge to express in specific situations.

In short, most students can acquire a lot of pronunciation, vocabulary, grammar, discourse and pragmatic knowledge in the teacher's class, and can also understand the deep meaning of the article and the author's emotions, attitudes and values based on the information of the article, but perhaps it is because the use of language has higher requirements on students' comprehensive ability, so some students still need to strengthen their expressive skills, but in general, students' language ability has been improved in the classroom based on the concept of English learning. In the process of reading English classics, it is necessary to strengthen the theme context and discourse awareness, and improve the ability to grasp the key information, language characteristics and discourse structure of the text.

Insist on the combination of intensive reading in class and extensive reading after class, time-limited reading and non-time-limited reading, reading and writing training as the main line, insist on reading more than a thousand words of famous chapters every day, pay attention to the sublimation of the theme and meaning of the text, expand the depth and breadth of language learning and understanding, do a good job of teaching activities that promote writing by reading, promote reading by writing, and combine reading and writing, and develop the habit of writing after reading, experience, article summary, imitation, rewriting, and continuation after reading, improve students' ability to read and follow-up and standardize the validity of written expression, and strive to encourage students to draw inferences from one example, understand by analogy, and mastery of English classics in reading and learning, and gradually cultivate students' core literacy in English." Teacher B guides students to think and compare Which Chinese holiday is like Thanksgiving and why. The learning activities designed by teacher B correspond to the activities implemented in the pre-reading stage, which



help students to summarize and integrate the knowledge they have acquired, build a relatively complete logical thinking framework, and apply it to other contexts to solve new problems, for deep thinking. However, the same as teacher A, teacher B did not guide students to review the author's intention, which is not conducive to grasping the author's emotional attitude, so it only basically meets the requirements of the "view of English learning activities".

### 3. CONCLUSION

Based on the schema theory and Bloom's taxonomy of educational objectives, this research carried out a one-semester "English learning activity view" research. The author uses qualitative and quantitative methods such as questionnaires, classroom observations, and teacher interviews to investigate the cognition and practice status of junior high school English teachers' "view of English learning activities". In the process of designing activities, we must not only pay attention to the level and coherence of activity design, but also be good at using situational teaching, information technology and mind mapping, and be good at asking questions, to better serve the realization of teaching goals. During the learning activities, students are constantly talking with the text, the author, and themselves. Faced with the new situation surrounding the theme context, students can form new cognitions, develop abilities, establish a correct outlook on life, the world, and values, and comprehensively improve students' core literacy.

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# Intelligent Multi-Platform Software Practice of Accounting Teaching Innovation under the Background of High-Frequency Data Clustering

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**Abstract:** Cluster analysis is the process of grouping similar data objects into multiple clusters. Through clustering, valuable knowledge and patterns can be extracted from a large amount of data, and software data can be processed efficiently. Mainly from the influence of intelligence on the accounting industry and vocational education, it further expounds the current situation and existing problems of practical teaching of accounting majors in secondary vocational schools under the background of the new era, and proposes effective reform measures for these problems. This paper studies the problems existing in the current accounting education model in colleges and universities under the background of "Internet + big data"; the training mode of accounting professionals in secondary vocational colleges should also be reformed and innovated according to the changes of the times, from the aspects of teaching content and methods. Carry out comprehensive reform and improvement, so as to supply more high-quality accounting talents for socialist construction.

**Keywords:** Intelligent Multi-Platform Software, Accounting Teaching Innovation, High-Frequency Data Clustering

## 1. INTRODUCTION

Partial discharge of a transformer is an important symptom of its insulation deterioration [1]. The degree of partial discharge of a transformer is considered to be an important aspect for judging the operating state of a transformer. Cross-linked polyethylene (XLPE) cables were introduced in the early 1960s and have the advantages of good insulation performance [2], safe and reliable power supply, easy manufacture and installation, etc. It has become the mainstream of cable development and engineering applications [3]. Its clinical manifestations generally include: foreign body sensation in the pharynx or esophagus at first, stagnation during eating, followed by swallowing infarction, and gradually develop to the chest diaphragm every time you eat. Pain, even inability to eat or vomiting after eating [4], often accompanied by stomach discomfort. With the rapid development of intelligent technology, the traditional accounting teaching model can no longer meet the needs of the society [5], in order to adapt to the social demand for accounting talents in the new era. Need, the school's training of talents, need to adapt to the development of the industry.

In the context of artificial intelligence, the teaching objectives and curriculum system of the accounting major should continue to be adjusted accordingly [6], and such adjustments should focus on coherence and logic, so as to achieve an effective connection between secondary and higher vocational courses in terms of curriculum, so that teaching and enterprises demand [7]. Under the background of artificial intelligence, the innovative research on the talent training model of accounting majors in secondary vocational schools will make the accounting major in secondary vocational colleges further develop in terms of talent training. The most important point is that the overall quality of talents will be comprehensive [8]. Therefore, accounting educators in colleges and universities should seize the opportunity and think deeply about how to use the "Internet + big data" model to promote the theoretical innovation and practice of accounting education [9]. Analyzing the actual situation of the current accounting talent education management, the core

control goal is to realize the cultivation of high-quality and high-skilled talents [10].

In the process of learning, the academic certificates that students can obtain can reflect the overall quality of personnel training in vocational colleges [11]. To carry out the construction of "new liberal arts", colleges and universities should not only focus on theoretical construction, but also cultivate students' political quality [12], professional ability and sustainable development ability. By 2020, form a modern vocational education system with Chinese characteristics that adapts to development needs [13], connects secondary and higher vocational schools, integrates industry and education in depth, communicates between general education and vocational education, reflects the concept of lifelong education, and has Chinese characteristics [14]. Anti-interference technologies such as discrimination and wavelet denoising are widely used in partial discharge detection, but due to the shortcomings of partial discharge detection methods such as pulse current method [15], they face strong electromagnetic interference on site. Typical spectra of the internal discharge of the insulating material, the surface discharge of the insulating material and the corona discharge are shown in Figure 1 [16].

Under the background of intelligence, the collection of data is mainly through new methods such as reading to the Internet cloud, importing templates [17], scanning QR codes, etc., to obtain original documents such as invoices, and cash, bank deposit journals can also be obtained through bank statements, Alipay statements, etc. [18] The original data is directly generated. The accounting work based on artificial intelligence has undergone obvious changes. With the participation of artificial intelligence [19], the massive statistics and calculation work in the traditional accounting work will be simplified, accounting, statistics [20].

Therefore, it can have a very broad development and research prospects [21]. At present, artificial intelligence and computer technology are inseparable. Computer technology is the basis for the development of artificial intelligence, and artificial

intelligence can in turn improve the operation sensitivity [22] of computer technology. In the era of "Internet + big data", the popularization and application of computerized accounting [23], Substantial changes have taken place in the content and requirements of the practice training of accounting majors in colleges and universities [24].

## 2. THE PROPOSED METHODOLOGY

### 2.1 The High Frequency Data Clustering

Significant changes have taken place in the working methods and methods of accountants, which put forward higher requirements for the knowledge of professional ethics of accountants. The development of teachers' professional ability runs through the process of teachers' entire careers, and the process is long, dynamic and complex. In the 1960s, the rise of research on teachers' professional development laid the foundation for improving teachers' professional ability, such as Fuller. Cluster analysis is a kind of multivariate statistical analysis and an important branch of unsupervised pattern recognition. It divides a sample set with no class label into several subsets (classes) according to a certain criterion. Similar samples are classified into one class as much as possible. It has been used in the detection of power cables, but the UHF signal is attenuated seriously and easily Influenced by the complex environment on site.

The ultra-high frequency detection method can only extract a part of the information in the pulse signal. Under the background of intelligence, the traditional teaching mode can no longer adapt to the development of the times, and new teaching methods and means emerge in an endless stream. Students have more flexible learning time and more space for learning. Freedom is no longer limited to classrooms, libraries, training rooms and other teaching places.

### 2.2 The Accounting Teaching Innovation

The participation of artificial intelligence changes the content of accounting work and also changes the job settings. Enterprises will inevitably adjust the configuration of accounting positions according to accounting habits and share more artificial auxiliary work. In fact, the manifestation of artificial intelligence in the accounting industry is first of all. The accounting-related models and methods are processed programmatically, so that when the corresponding work is carried out, it can not only reduce human errors, but also optimize the ability of data processing to the greatest extent. Some schools have inconsistent business environments. Problems such as truthfulness, incomplete business settings, and unclear positions have caused students to lose their initiative in learning and enthusiasm for project research. Different vocational colleges have different teaching management schemes in the teaching stage of accounting major.

Analyzing the actual situation of secondary vocational students, we will find that many students will have unsatisfactory results in the senior high school entrance examination. Maintaining trust and loyalty is the most basic ethical requirement in the accounting profession. Accounting practitioners should be honest and fact-based to ensure the authenticity of corporate accounting information. The gray system theory is aimed at the uncertainty problem with no experience and little data, that is, the problem of "less data uncertainty" The proposed problem of identifying and judging the type and degree of discharge through a small number of characteristic parameters of the partial discharge mode is also such a problem. At present, the traditional high-frequency

partial discharge detection technology used in the partial discharge detection of XLPE cables is mainly a partial discharge detection method based on discharge current pulses.

It mainly uses the basic principle of electromagnetic coupling method to collect partial discharge signals. Due to the particularity of accounting positions, the number of enterprises that cooperate with vocational colleges is limited, most of which are small and micro enterprises, and few large and medium-sized enterprises. Compared with the number of accounting majors in secondary vocational colleges. Under the change of job content and job requirements, the business ability of accounting talents must also be changed. According to the existing development trend, the basic abilities that accountants should have under the background of artificial intelligence It will also focus on transformation.

### 2.3 The Intelligent Multi-Platform Software Practice

In the traditional accounting education model, simply imparting knowledge in textbooks to students does not play a role in divergent learning. With the development of new technologies, it is very necessary to update the course content.

First of all, the development and maturity of accounting computerization makes it difficult for accounting students to recruit excellent teachers in the recruitment process of secondary vocational colleges. Many teachers are external teachers. Even if they have practical experience, in their daily work, they mainly explain professional knowledge, and there are many deficiencies in student management. With the development of Internet technology and the emergence of financial robots, accounting work needs to predict economic prospects, participate in management decisions, control management activities, and expand in the field of accounting.

Among them, secondary vocational schools (hereinafter referred to as "secondary vocational schools") are an important part of my country's education system and the main body of my country's vocational education. It uses a professional training method to carry out skills education for junior high school graduates or people with the equivalent education of junior high school, so as to cultivate skilled talents needed in all walks of life. Fuzzy clustering is to use the fuzzy method to deal with the clustering problem. The method based on the objective function of all UHF signal feature samples is divided into several categories through the optimization iterative algorithm. It is difficult to find each type of discharge, and it is even more impossible to accurately identify the discharge. type or defect type. Therefore, it is a key issue to accurately separate and classify the measured PD signals. The construction of teaching staff is an important factor that reflects the quality of a school's teaching, and the level of teachers' strength determines the height of students.

However, most accounting teachers in secondary vocational colleges do not have rich practical work experience. The talent training of accounting major itself needs to have sufficient financial ability and business level, and in the context of artificial intelligence, its intelligent and compound type also It will be superimposed, that is, the awareness of "intelligence" must be highlighted in talent training, that is, attention and attention to various impacts of artificial intelligence on accounting talents.

### 3. CONCLUSIONS

The method performs fuzzy clustering on the time-frequency characteristics of the collected PD pulse signals, so as to separate and classify different signals. Taking the accounting ability assisted by artificial intelligence as the training goal, and strengthening the connection of relevant courses in secondary and higher vocational schools, through the mutual connection of course content and systems, the adaptability of talent training will be better strengthened around "artificial intelligence". Innovate and optimize the practical teaching mode. Build a resource sharing platform by improving talent training programs, optimizing faculty structure, and deepening school-enterprise cooperation.

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# Optimization of English Learning Activity Observation Management Software Based on Openstack Optimization: Based on Extreme Hybrid Testing Algorithm

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**Abstract:** In this paper, a gray wolf optimization algorithm (BGWO) based on extreme mixture learning algorithm is proposed, which improves the population diversity of GWO in the search process. The training of KELM is completed by iteratively solving the observation of English learning activities with the best fitness function value in the search space. Combined with examples of reading teaching design in the same class and heterogeneous, this paper summarizes the design ideas of high school English reading teaching based on the concept of English learning activities. That is, to refine the main line of the text and construct structured knowledge; to use the 3×3 English subject ability element framework. The proposed multi-objective optimization strategy for virtual machine dynamic migration. This strategy is described from the aspects of system resource monitoring, resource scheduling timing selection, virtual machine selection to be migrated and physical machine migration selection.

**Keywords:** English Learning Activity, Observation Management Software, Openstack Optimization, Extreme Hybrid Testing

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## 1. INTRODUCTION

Using soft sensing technology can realize the on-line detection of quality, economic indicators and some key process variables that are difficult to detect in industrial processes [1]. Soft sensor models based on different learning algorithms are widely used in various fields of industrial processes. Many scholars have studied the random vector function connection (RVFL) network. Based on the research results of RVFL [2], the "Extreme Learning Machine (ELM)" algorithm proposed by Huang et al. obtained a faster learning speed and better generalization performance. Due to the characteristics of random initialization of ELM algorithm [3], it is difficult to establish a nonlinear model based on small samples, but Kernel ELM (KELM) not only solves this problem. The cultivation of reading ability is the top priority of English teaching in high school [4].

Since the eighth reform of the English curriculum, high school English reading teaching has been continuously reformed. The majority of teachers [5] strive to practice the course goal of "cultivating students' comprehensive language use ability", and shift from focusing on knowledge to focusing on people and students' development [6] in English reading teaching in high school, but there are still many problems. Therefore, it is very necessary to explore how to effectively carry out high school English reading teaching design based on the theory of English learning activities [7].

The "General High School English Curriculum Standards (2017 Edition, 2020 Revision)" (hereinafter referred to as the curriculum standards) proposes that the English learning activity concept refers to the comprehensiveness of students through learning understanding [8], application practice, transfer and innovation under the guidance of the theme meaning. English learning activities with characteristics of , relevance and practicality, so that students can promote their

own language knowledge learning [9], language skills development, cultural connotation in the process of analyzing and solving problems based on their existing knowledge and relying on different types of texts. Understanding, multiple thinking development [10], value orientation judgment and learning strategy application. In short, the concept of English learning activities is goal-oriented to develop core literacy, and is a necessary means and operable path to ensure teaching results [11]. The performance of traditional feedforward neural networks (such as BP) often depends on the setting of parameter values in the network, and there is a certain dependence between the corresponding parameters in different parameter layers [12]. However, the gradient descent algorithm has the problem that the learning process is slow and it is easy to fall into the local minimum value. The structure of the feedforward neural network is shown in Figure 2-1 and Figure 2-2 [13].

Data-driven models are black-box models. In the blast furnace smelting process [14], through the data acquisition system, some input and output data can be measured in real time. These data are saved in a database, and researchers can easily call them to predict the blast furnace temperature. In actual production [15], there are many parameters affecting furnace temperature, including adjustable control parameters and some state parameters [16]. Based on the variables detected by the existing instruments and the smelting mechanism of the blast furnace, the measurable state parameters include: hot air pressure, oxygen enrichment rate, total pressure difference [17], furnace top pressure, actual wind speed, theoretical combustion temperature, blast kinetic energy, air permeability index etc.; OpenStack is a comprehensive set of open source software projects that provide an operating platform and toolset for deploying the cloud [18].

Its purpose is to help users run clouds as virtual computing or storage services [19], and provide scalable and flexible

deployment solutions for public clouds and private clouds. Rackspace and NASA were the first two important contributors [20], the former providing the "cloud files" platform code that enhanced the object storage part of OpenStack, and the latter bringing the "Nebula" platform to form the rest of OpenStack [21]. Today, the OpenStack Foundation has more than 500 members, including many well-known companies such as HP, DELL, Oracle, Huawei and so on. Application virtualization refers to the centralized push and deployment of applications [22], but each virtual application is independent. The advantages of application virtualization are: first, it is convenient for users to manage applications; secondly, it can reduce the company's development costs and improve the work efficiency of R&D personnel; thirdly, users can use their own virtualized applications on different terminals [23].

## 2. THE PROPOSED METHODOLOGY

### 2.1 The OpenStack Optimization

OpenStack adopts modular architecture as its core design principle, and consists of a series of components, each of which provides different services, each component is an independent project, with its own committee and project technical director. Up to now, OpenStack has a total of 9 core projects. The system architecture diagram of OpenStack is shown in Figure 2-1: It is a cloud computing platform jointly developed by the company and the US space agency in 2010. There is a good development trend in cloud technology, and it has gradually become the mainstream technology for building cloud platforms. Has the following characteristics.

It combines the technology of the National Space Administration, namely server virtualization deployment, and the technology of cloud storage. Not only can it be deployed in a single computer environment or in a clustered environment, it is compatible with license authorization, and it can flexibly create infrastructure solutions for multi-scale public and private cloud needs and can greatly improve data. Operational efficiency of the center. At present, its community has multiple companies and multiple developers, and this number is constantly increasing. The module is designed on the basis of OpenStack's basic monitoring service component Ceilometer to realize the main monitoring services, virtual machines and events. The overall operation of the service is the cloud platform, including OpenStack's main services Compute, Image, Network, etc. The monitoring of virtual machines includes CPU usage. Occupancy, memory usage, network I/O, disk I/O. The monitoring system obtains CPU, memory, network, and disk information through the service polling instance deployed on the computing node by Ceilometer. Dynamic resource scheduling judges migration conditions according to the utilization of computer resources including CPU and memory. Based on the Ceilometer component in OpenStack to realize resource monitoring and control Openstack is completely open source. An open source platform does not mean that it is not tied to a particular vendor? restrictions, and the modular design can easily integrate with third-party technologies to meet the needs of the enterprise's own business.

### 2.2 The Extreme Mixing Test Algorithm

The method proposed in this paper is effective. In Table 2, the accuracy of the KELM model using the Poly kernel is poor, and the accuracy of the KELM model using the RBF kernel is higher, indicating that the RBF kernel is more suitable for the NIR spectral data. When using the hybrid kernel, the effect is the best, in which the weight of the RBF kernel is 0.9003,

while the weight of the Ploy kernel is only 0.09961, indicating that the KELM algorithm of the hybrid kernel is effective. However, the question of why different nuclei need to be selected for different data needs to be further studied. Different from the traditional feedforward neural network, the learning speed of extreme learning machine SLFNs and ELM proposed by Nanyang Technological University Professor Huang Guangbin et al. By proving that the algorithm can approximate the training samples with zero error when the number of neurons in the hidden layer is equal to the number of training samples, and when the number of hidden neurons is less than the number of training samples, the training error of ELM can approximate an arbitrary value greater than 0. value. The hidden nodes of the ELM learning algorithm are like neurons.

The ELM structure is shown in Figure 2-3: Different from the traditional feedforward neural network, the SLFNs of extreme learning machines proposed by Professor Huang Guangbin of Nanyang Technological University in Singapore, ELM learning speed is greatly improved compared with traditional learning algorithms, and It has better generalization ability. By proving that the algorithm can approximate the training samples with zero error when the number of hidden neurons is equal to the number of training samples, and when the number of hidden neurons is less than the number of training samples, the training error of ELM can be Approximate an arbitrary value greater than 0. The hidden nodes of the ELM learning algorithm are like neurons. The structure of ELM is shown in Figure 2-3: Extreme Learning Machine is a machine learning algorithm based on feedforward neural network. Compared with traditional learning algorithms (such as BP algorithm, etc.) Has good generalization performance. Since the extreme learning machine method was proposed, it has been widely used in the prediction of silicon content in blast furnace hot metal.

The team led by Academician Gui Weihua of Central South University combined the composite differential evolution algorithm with the extreme learning machine to predict the silicon content of the hot metal in blast furnaces.

### 2.3 The Optimization of English Learning Activities Observation Management Software

In the design of teaching activities based on the concept of English learning activities, learning comprehension activities mainly include perceptual attention, memory retrieval, retrieval and generalization and other text-based input learning activities; application practice activities mainly include description and interpretation, analysis and demonstration, integration and application. The output learning activities of discourse aim to help students internalize and apply the acquired language knowledge and cultural knowledge, consolidate new knowledge structures, and transform knowledge into abilities; transfer and innovation activities mainly include reasoning and judgment, creative imagination, critical evaluation, etc. Advanced output learning activities beyond discourse, that is, guiding students to migrate from discourse style, language form, author's attitude and viewpoint. Innovative activities mainly include learning activities beyond discourse, such as reasoning and argumentation, criticism and evaluation, imagination and creation.

Migration and innovation activities help students to deepen their understanding of the meaning of the theme, and then enable students to comprehensively use language knowledge

and conduct multiple thinking in a new context, based on a new knowledge structure, through independent, cooperative, and inquiry-based learning methods. Creatively solve problems in unfamiliar situations. VTK consists of two basic subsystems, the core layer (written in C++ language) and the interpretation layer, as shown in Figure 4.1. The Interpretation layer supports certain rule-generating scripting languages, such as Tcl, JAVA and Python. The core layer provides speed and efficiency, including: data structures, algorithms and system functions that require high computing time; virtual functions and abstract factory design patterns are used to make the whole system have good portability and scalability; VTK adopts separation mode, The core layer is separated from the GUI, and the two are independent of each other, so the integration of VTK in any system is very convenient; VTK has good portability for graphics, which is inseparable from the abstract image model. Interpretation layer provides interfaces for other development languages, so that it has good extensibility and flexibility.

### 3. CONCLUSIONS

In English teaching, through a series of activities close to the real social situation, students' language knowledge and language skills are integrated and developed, their cultural awareness is continuously enhanced, their thinking quality is continuously improved, and their learning ability is continuously improved. Learning provides a strong guarantee. Compared with Bloom's educational objective classification, a multi-objective optimization algorithm is proposed for the dynamic migration of virtual machines on the OpenStack cloud platform. Firstly, the virtual machine scheduling strategy and dynamic migration technology are analyzed, and the current virtual machine dynamic migration problem.

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# Construction of the Evolution Visualization Path of College Party and Government History Based on United Front Data Integration and Retrieval Algorithm

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**Abstract:** In this paper, a data integration model based on Wuyi structure is proposed. Compared with the traditional pure data integration model, the model has scalability. It aims to improve the effectiveness of teaching and realize its own scientific motivation., in terms of curriculum setting, content construction, method improvement and other aspects of continuous efforts to explore, after the initial development, comprehensive construction, reform and development, deepening reform, innovative development and other construction stages, many profound changes have taken place. Build a good "situation and policy" Classes must be highly valued by the party and the state, must adhere to standardization and institutionalization, must adhere to the unity of stability and variability, and must adhere to the combination of inside and outside the classroom.

**Keywords:** Evolution Visualization Path, College Party, Government History, Front Data Integration

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## 1. INTRODUCTION

In the new historical development period of building a well-off society in an all-round way and building a harmonious socialist society, the work of ideological and political education (moral education) in colleges and universities is facing many new situations and new problems [1]. By sorting out and studying the historical evolution of ideological and moral course construction in colleges and universities. In addition to traditional relational databases, there are object-oriented databases, semi-structured databases, text databases and other forms. The integration of data in heterogeneous databases requires heterogeneous Data integration solutions [2].

Sorting out and summarizing the historical evolution and construction experience of the "Situation and Policy" course in colleges and universities since the founding of New China has important practical significance for us to implement the spirit of the National Conference on Ideological and Political Work in Colleges and Universities today [3], and to strengthen and improve the situation and policy education under the new situation. Due to the inconsistency of data formats between different systems and other problems, the inability of data sharing or transmission between different application systems in different departments leads to low efficiency of inter-departmental production collaboration, which seriously affects the production of enterprises [4].

And it is reflected in different data access technologies and different data modes—there may be structured data sources such as traditional relational databases and object-oriented databases, semi-structured data organized by documents, such as spreadsheets, documents, and web pages, may also be There are unstructured data resources. Even in the same data model, there may still be heterogeneity in terms of structure and semantics. In order to meet the requirements of the new situation of reform and opening up, the ideological and political education in colleges and universities has begun to explore its own scientific process. A direction to promote the scientific exploration of ideological and political education in colleges and universities [5].

This paper proposes a cross-database retrieval solution based on COM technology. On the basis of analyzing Web Service technology, it studies a new method of using Web Service technology to solve heterogeneous data integration [6]. After the founding of New China, according to the "Common Program" To give young intellectuals and old intellectuals revolutionary political education", the newly established Ministry of Education clearly stipulates: "The main task of schools in the new district after the resettlement is to carry out political and ideological education [7]. It also makes the informatization construction of enterprises more flexible [8], Efficient On the other hand, compared with the traditional software model, the model has strong advantages in enterprise application integration and data integration, and can provide strong support for enterprise data integration [9].

Building a data integration system based on the mediator wrapper system is still a common technical method for processing and integrating heterogeneous data [10]. This kind of system usually has a general mediation model that represents data and consists of multiple mediator components and multiple wrapper components [11]. At the beginning of the ideological and morality course, although it can be welcomed by students, there are also Ministry of Education documents (That is, in October 1982, the Ministry of Education issued a notice on the gradual opening of communist ideological and moral courses in colleges and universities) [12].

The interaction between COM objects and clients is based on the client-server model. COM provides a basic platform for the development of the three-tier structure [13]. The advantages of this model are stability, high reliability, and software scalability. Good sex. ... This kind of education must first oppose comprador, feudal, and fascist ideas, and establish the idea of serving the people. " [14]

Based on this, colleges and universities offer three compulsory political courses, "History of Social Development", "New Democracy Theory" and "Political Economics". For data integration with a small amount of data, enterprise users can directly call the data integration service to



achieve integration for for the integration of large amounts of data [15], a lightweight adapter needs to be installed on the user side. No matter how the data integration service is configured through the user interface, the unified management of distributed and heterogeneous data sources can be achieved [16]. This chapter will propose a novel and effective Data Integration Definition Specification Language. The language can express data integration processing semantics such as data extraction, processing transformation and synthesis from a highly abstract level, and supports program construction in an intuitive graphical way [17].

## 2. THE PROPOSED METHODOLOGY

### 2.1 The United Front Data Integration and Retrieval Algorithms

Call COM components through ASP to complete the distribution of customer questions and the integration of query results. The distribution of customer questions is mainly based on the different types of customer questions (such as books, journals, papers, etc.) transmitted from the client. The framework includes, the two parts are deployed on the data source node side to extract the data source node data, convert the data to generate an intermediate file and send it to the end.

The basic idea of movement is mainly derived from the theory of code movement - moving the calculation process to the data for local processing and bringing back the calculation results instead of the original data. The advent of mobility made communication between computers no longer a relationship between one host calling services on another host. The figure shows the comparison between the mobile agent computing mode and the traditional computing mode. Obviously, the basic idea of moving is mainly derived from the theory of code movement - moving the calculation process to the local data processing and bringing back the calculation results instead of the original data. The advent of mobility made communication between computers no longer a relationship between one host calling services on another host. The figure shows the comparison between the mobile agent computing mode and the traditional computing mode.

Obviously, the service-based implementation can be used for the integration of structured information and semi-structured information with large amounts of data, or it can be used independently by users to provide users with data conversion, data cleaning and small data volume according to the user's personalized customization. This is the first time in the history of new China's higher education that the requirements for opening the "Situation and Tasks" course have been clearly put forward and specific arrangements have been made. It is combined with the "Basic Theory of Marxism-Leninism" course. "Common Political Theory in Colleges and Universities".

### 2.2 The Party and Government History in Colleges and Universities

It is only a means, approach, or channel for ideological and political education for students. It is course construction rather than discipline construction. Otherwise, it will deviate from the purpose of opening this course. The key in the retrieval process is the analysis of retrieval requests and retrieval results. Integration. Distributing user requirements to different databases for retrieval is an important guarantee for successful cross-database retrieval. The proxy configuration file on the application server mainly records the IP address and port number of the retrieval proxy.

The responsible comrades of the school party committee should make frequent reports.” [1]51 Such curriculum settings and arrangements continued until the “Cultural Revolution” broke out and the “Course Suspension to Make a Revolution”. In 1970, some colleges and universities implemented the “mass recommendation. By analogy, all the backbone nodes were elected and finally deployed.” The top-level backbone node information is recorded in the layer node of the? to form an integration tree with the target node as the root. A general, general data model that is independent of the described resources is used to describe the information resources, so that these information resources can be Swap between apps more easily. This data model is a graph-based model consisting of "nodes" and labeled "directed connection arcs" between nodes.

On the other hand, there may be duplicates, because different databases may contain the same data, and such duplicated results should be eliminated; and not every database can contain the data that the user wants to return. Field. Based on these experiences, in October 1982, the Ministry of Education issued the "Notice on the Gradual Opening of Communist Ideological and Moral Courses in Colleges and Universities", requiring that "situational task education and ideological and moral courses can use the weekly ideological and political education time. Synchronous data integration is a data integration method that maintains synchronization between the two parties after transferring the data file to the wait for it to complete the processing of the data file and return a success or failure prompt.

### 2.3 The Integration Analysis of Social Translation A Priori on The Wisdom Teaching of English Machine Translation

No matter what platform the retrieval agent and the database are based on, what is passed between COM and the retrieval agent is only XML statements defined by both parties, which can solve the cross-platform problem. All colleges and universities are required to focus on a period of time to provide students with extensive and in-depth political and legal education, education on the achievements and situations of reform and opening up, and changes in the international situation, and education on adhering to the Four Cardinal Principles and opposing bourgeois liberalization.

Service-based implementation of the South can be used for the integration of structured information and semi-structured information with large data volume, or it can be used independently by users to provide users with data conversion, data cleaning, and semi-structured information with a small amount of data. Structured information integration and other services. In this chapter, we will propose the concept of “data service”, an active data integration concept, and propose a new data integration method that can provide all data resources. The network node of the network actively publishes the data service with the data service unit 1 as the basic unit. During the heterogeneous data integration, the data type conversion work is placed on the Web Service side.

Unifying different data types to XSD data types reduces the complexity of the problem and makes the data obtained by calling Web services of the same type. The arrangement of class hours is included in the teaching plan, the establishment of the Communist Ideological and Moral Teaching and Research Section (not called the Moral Education Teaching and Research Section) in teaching institutions, as well as the establishment of teachers and team building, etc., all have a basic policy basis. As long as it is a retrieval agent written to

meet the requirements of communicating with COM, it can achieve seamless connection with the system. The retrieval agent searches the database, and COM does not care about how the database is operated.

### 3. CONCLUSIONS

The ideological and moral course in colleges and universities came into being in the practice of exploring the scientific work of ideological and political education (or moral education) in colleges and universities. In order to adapt to the new requirements constantly put forward by the development of my country's socialist modernization, facing the characteristics of college students in different periods and their general concerns for the purpose of improving the effectiveness of teaching, Web Service technology provides a series of solutions for the system heterogeneity and mode heterogeneity faced in heterogeneous data integration, as well as the problem of data transmission across firewalls. In order to solve the system heterogeneity and mode heterogeneity faced in the integration of structural data, as well as the problem of data transmission across firewalls, Web Service technology provides a series of solutions.

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# Python Implementation of Scientific Research Intelligent Management Information System and Intelligent Distributed System Construction

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**Abstract:** This paper builds an ecosystem of smart scientific research under the smart education system, and proposes a closed-loop model for smart perception, processing, analysis, evaluation, and push of smart scientific research, to help the development and progress of scientific research. It also discusses the basic requirements of the smart scientific research ecosystem for management talents. With the help of the Python language, this paper designs and implements a distributed log system that can be deployed only based on the Python built-in library. The log client and server only need to be implemented with very little code, and it has simple library dependencies. Using the distributed programming concept to build a file sharing network platform, this is a supplement to the traditional file sharing form, and it is also an innovation and attempt.

**Keywords:** Python Implementation, Scientific Research, Intelligent Management Information System, Intelligent Distributed System

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## 1. INTRODUCTION

In the era of big data, the dissemination and sharing of information is a necessary condition for creating efficiency, and it is also an indispensable and optimal way for people to communicate and collaborate [1]. In this environment, each piece of information and the various media behind it are actually an important part of big data. Internal control refers to the prevention and control of risks in economic activities by formulating systems, implementing measures and implementing procedures. Management and control, in view of the current state of my country's economic development [2], the reform of administrative institutions has entered a critical period and a deep-water area. The theory of the origin of labor in education tells us that the needs of human society in the process of labor produce education, a unique social activity. It is conditioned on the development of human language and consciousness, and functions to transmit the production and life experience formed in the labor process [3].

In 2009, the Copenhagen World Climate Conference proposed that global greenhouse gas emissions should be reduced to half of 1990 in 2050, announcing that human beings have entered a new era of low-carbon development [4]. Python language has the characteristics of strong expression ability and rich third-party libraries. It is widely used in enterprise IT automation operation and maintenance system. Python usually exists in various business systems in the form of simple scripts. Finally, as the core of search engines, some famous Internet companies (Google, Baidu) have conducted in-depth research on distributed crawlers, but they cannot be open sourced as business secrets [5].

Therefore, this article is fast and efficient. The development of smart campuses in China has achieved certain results. Many scientific and technological scholars, educators and relevant national policies have made great contributions to the development of education in our country, making the informatization of national education [6]. The technical level has been greatly improved. In recent years, the Central Committee of the Communist Party of China has also clearly

pointed out in the decision of the Central Committee of the Communist Party of China on several major issues of comprehensively promoting the rule of law [7], that it is necessary to implement job rotation for departments and positions with concentrated powers such as the allocation and use of financial funds, asset supervision, investment, procurement, transfer of public resources, and public works construction. etc., [8] so that internal control can be enhanced. Scientific institutions are an important part of institutions and the backbone of scientific and technological innovation in my country. The use and management of scientific research funds is the key to improving the scientific research and development capabilities of scientific institutions [9].

Therefore, the case of N scientific institutions is selected to study the improvement of the internal control system of scientific research funding management [10]. The internal control of public institutions in my country is in its infancy, and the state has begun to pay attention to the institutional construction of institutions. This is because whether it is for enterprises or institutions [11], whether the internal control is effective, and the degree of effectiveness of the internal control greatly determines the management level of the enterprise or unit. In the work, the transmission and exchange of various documents is a common and common phenomenon [12]. The general processing methods are nothing more than the following: transmission is carried out by means of the unit's OA system and instant messaging tools such as QQ [13].

At present, some scientific research institutions in my country have been transformed into enterprises and are subject to the "Accounting Standards for Business Enterprises" and the implemented internal control system of enterprises [14]. The remaining administrative scientific research institutions are subject to the Civil Service Law, and the relevant rules and regulations are relatively complete and mature [15]. The three revolutions occurred during the transition from agriculture to an industrial society, and the class teaching system appeared in the third revolution, which made the dissemination of

knowledge more systematic and continuous, and further met the needs of large-scale industrial production for talents [16]. In energy the whole process and each link of development, utilization, production and consumption integrates the unique wisdom of human beings, and establishes and improves the energy technology and energy system that meets the requirements of ecological civilization and sustainable development, thus presenting a new form of energy [17].

This phenomenon brings great challenges to enterprise operation and maintenance management and troubleshooting. Operation and maintenance personnel need a distributed logging system that can retrofit existing scripts at low cost, and can also be used stably in future scripts [18]. Usually, a website will ask to log in to the website or check whether the cookies contain user identity information before visiting. For example, Zhihu, CSDN articles, Netease Cloud and other websites need to log in before they can browse the web content [19].

## 2. THE PROPOSED METHODOLOGY

### 2.1 The Scientific Research Intelligent Management Information System

As a result, the internal control system is a mere formality; the system is relatively empty and cannot provide substantial technical support. The above problems can only be solved by reasonably distinguishing the core objectives of the internal control system of enterprises and administrative institutions. Smart education refers to education supported by information technology and aimed at developing students' intellectual abilities. Specifically, it is the use of information technology to complete intelligent learning. The creation of the environment (technological innovation), and the intelligent transformation of teaching methods (method innovation). The energy demander can manage the energy demand according to the situation and price of each dry leaf, energy supplier, dynamic Submit your request. As for the energy supply side, I rT is used to adjust the production supply according to the demand.

Data reliability (R, Reliability) and speed (S, Speed) have always been important research directions. Data reliability and speed play a key role in the security of information technology in various fields. Information technology Since the long-term development, methods and theories of data reliability and usability suitable for different application scenarios have been proposed. The 9 technical research institutes are: Equipment System Research Institute, System Simulation Research Institute, Intelligent Equipment Technology Research Institute, Unmanned Platform Institute of Technology, Institute of High Beirong Applied Technology, Institute of New Materials and Advanced Manufacturing, Institute of Optoelectronic Information Technology, Institute of Bioengineering Technology, and Institute of Tactical Communication Technology. With the support of the national ministries and commissions, N science institutions attach great importance to the transformation of scientific and technological achievements and have established market-oriented subsidiaries with high-level professional technical teams. Coordinated development, dispatched technicians to various provinces and cities for technical support.

The control contents of Unit A include personnel management, financial management, procurement management, intellectual property protection, construction project management, contract management, scientific research

management, state-owned asset management, and administrative management, among which budget, procurement business, and state-owned asset management.

And from education, health, civil affairs, transportation, politics and law, townships and other different industries and departments selected 10 representative administrative institutions for comprehensive evaluation, and constructed the internal control evaluation model of district and county administrative institutions. System. In terms of human resource policies, there is a lack of a reasonable incentive mechanism. Incentive is the core of management, which refers to the use of means for specific goals to affect employees' internal needs, strengthen motivation, and guide employees' behavior. When employees' spiritual or material needs When satisfied, it increases motivation at work.

### 2.2 The Python Implementation of Management Information System

The main function of the server side of the system is to collect the directory index sent by each client, save it in a unified folder, and provide users with a search interface for file retrieval. , The theory of internal control and The development of practice is relatively lagging behind. Scientific and technological innovation is the decisive force for the prosperity and revival of a country. A reasonable system design of scientific research units can provide high-quality scientific and technological supply and strive to support the construction of a modern economic system.

Education informatization has achieved new development. The technological form has been transformed from digital to intelligent. The transformation from digital education to smart education has triggered a revolution in the education system. Smart education has become a leader in educational informatization innovation. The architecture is at the front end of the log It avoids the use of third-party systems such as message queues, and effectively controls the transformation cost of existing scripts. In addition, the server uses ThreadingTCPServer to speed up the reading speed. In a distributed system, the status information of each node is very important, so each node needs to maintain communication, that is, to grasp the information of the node in real time. For example, it is necessary to know the number of links captured by node A and the number of tasks completed by node B. A The institute should optimize the existing control process based on the principle of mutual exclusion of positions. Separate "mutually exclusive" tasks and handle them by employees belonging to different positions, so as to achieve "separation of approval and execution, and separation of execution and supervision".

Take the storage and use of the official seal of Research Institute A as an example. Optimize the internal control process of fund management. Coordinating and organizing various departments to jointly improve the internal control system for issues such as responsibilities, business processes, major decisions, and major risks in the process of project research and development. Use the select model on sockets to implement port multiplexing, and use non-blocking functions to improve I/O efficiency. The handler for reading the socket specified by the socketserver is written as follows. Jeong, Kim & Yoo proposed a smart education system using cloud architecture, which can perform various tasks including video, pictures, three-dimensional objects, and augmented reality and virtual reality scenes. Enhanced educational content for sharing and delivery.

### 2.3 The Python Implementation and Intelligent Distributed System Construction

Although the amount of social science projects undertaken by Unit A is small, the number is large. A project often needs to be reported in many times before the account is completed. The financial work related to the project accounts for about 70%, resulting in the same amount of financial allocation as the same level of administrative agencies. There is a serious shortage of personnel. In general, the popularization of smart education concepts and the construction of smart education cloud platforms are major issues in the field of smart education. The above research explains these two issues. Pipe network optimization and energy-saving control system: On the basis of the dynamic collection and prediction of end-user energy consumption, through the hydrodynamic analysis of the cold and hot water pipe network and the research on the intelligent control model of the energy supply pump.

Use the built-in pickle module to load the read bytes for deserialization, and then restore the received remote log records through makeLogRecord. After that, set the specified logger through the name attribute of the record on the server side, and record the log information. The cloud environment experimental platform built in this paper uses 6 servers as storage and computing nodes in the cloud environment. The hardware configuration of each server is 32G physical memory and 8-core 2.3 GHz processor. Research Institute A lacks scientific risk identification tools. Risk identification relies on the relevant experience of senior employees and management. Strictly speaking, such a risk identification mechanism is better than nothing, and it cannot even be regarded as a real risk identification. It is just a test for the sensitivity of risk identification. 256G solid-state storage hard disk, cloud service network environment is that all 6 servers are in the same Under the network of a network segment, the IP addresses between them are consecutive in sequence.

The budget and final accounts review and summary post of the Finance Department shall report the budget preparation requirements to the leader in a timely manner in accordance with the requirements of the "Notice on the Preparation of Budgets on the First Year of XX Years", and convey them to the project leader, and at the same time send a copy to the relevant functional departments; each functional department The budget management post of the department fully communicated with the department heads on the departmental budget matters involved. The achievements of the integrity risk mechanism have been consolidated, and the assessment and identification of risks have played a good role. The risk is sorted out only from the perspective of building a clean government, and it does not play an all-round role in the risk prevention and control of the entire unit.

### 3. CONCLUSIONS

This paper introduces the method of building a distributed log service using only the Python native library, so that only about ten lines of code can be introduced to modify the existing script to realize the function of writing logs on the log server. From the perspective of COSO framework, the rationalization suggestions put forward mainly include raising awareness of internal control—organizing employee training, strengthening human resources construction—optimizing salary incentive system, establishing risk assessment mechanism, improving incompatible post separation mechanism, optimizing control activities, improving Information system, strengthen information communication.

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# Analysis of the Artistic Digital Characteristics of Haipai Ink and Wash Figure Painting under the Internet Background

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**Abstract:**Based on the Internet background, this article elaborates on the historical background of the artistic language diversity of Haipai ink and wash figures, and the influence and enlightenment of the diversity of the artistic language of Haipai ink and wash figures and the artistic language of Haipai ink and wash figures. This article focuses on understanding the artistic language diversity of Haipai ink figures through the three main characteristics of subject selection, modeling and pen and ink language, and extracts the digital characteristics of art for analysis, reflecting the active spirit of Haipai artists to create and explore continuously on the basis of inheriting traditions. It also reflects the diversity of aesthetic emotions and bold attempts of contemporary artists.

**Keywords:** Artistic Digital Characteristics, Haipai, Ink and Wash Figure, Internet Background

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## 1. INTRODUCTION

The current Haipai cultural research is facing new opportunities and challenges. The Haipai culture combines the traditional form of literati painting with personal feelings, and combines it with the gorgeous colors needed by the folks, and transforms personal freehand taste into the rich color freehand needed by the market. The Haipai culture of the year was a historical turning point in Chinese culture. Today's "New Haipai" art development also faces new opportunities and challenges. How does the artist cleverly combine the historical spirit of the "New Haipai" with modern decorative meanings? The problem that the author intends to solve in this article. The art of the New Shanghai School has a relatively important significance to the contemporary art world [1-6].

The Shanghai School is a special historical phenomenon with multiple connotations of politics, culture, economy, and social life, and it is a special painting genre. In the mid-to-late century, the influence of Shanghai School was declining. Today, the "New Shanghai School" art, as a continuation and innovation of Shanghai School calligraphy and calligraphy, is increasingly active. Many art activities are presented under the label of "New Shanghai School" in front of the public, which is eye-catching. The author hopes to analyze the formation, development and influence of the "New Shanghai School" art and the current situation of the creation of the "New Shanghai School" ink artists, with the help of three aspects of composition, color and modeling in the creation to analyze the application of decorative style in ink creation. The emphasis is on analyzing the performance of decorative colors in the "New Shanghai School" ink works, and discussing the practicality and value of the decorative meaning in the New Shanghai School ink works. Ink and wash figure painting is a main carrier for inheriting Chinese culture. It uses brush and ink as the main means of modeling, and brush, rice paper, silk and silk as the main tools. The formation and development of traditional Chinese figure painting modelling concepts, aesthetic taste and appraisal, etc., are all based on traditional Chinese philosophical concepts and thinking modes [7-14].

To understand the modeling characteristics of traditional ink and wash figure paintings, we must first grasp the philosophical ideas behind Chinese paintings. Traditional

Chinese paintings are always restricted and inspired by Confucianism and Taoism as well as Zhuangzi's "Heaven and Human Harmony" thought. The current Haipai cultural research is facing new opportunities and challenges. The Haipai culture combines the traditional form of literati painting with personal feelings, and combines it with the gorgeous colors needed by the folks, and transforms personal freehand taste into the rich color freehand needed by the market. The Haipai culture of the year was a historical turning point in Chinese culture. Today's "New Haipai" art development also faces new opportunities and challenges. How does the artist cleverly combine the historical spirit of the "New Haipai" with modern decorative meanings? The problem that the author intends to solve in this article. "The sea, the rivers; Shanghai, the sea." With its special geographical location, Shanghai has grown from a fishing village to China's largest commercial city in more than a century. With the prosperity of Shanghai, many painters from Jiangsu, Zhejiang and Anhui provinces poured into Shanghai and began to sell paintings for a living [15-21].

Early Haipai painters mostly used flower-and-bird paintings and figure paintings written by part-timers as their themes. Later Haipai paintings coincided with the social changes in China at the beginning of the 20th century. The rise of the New Culture Movement changed the cultural quality and historical fate of Haipai paintings. Greatly affected the new pattern of the Chinese painting circle afterwards, so Haipai paintings appeared a diversified trend, including later "New Shanghai School" and "Houhai School". Western watercolor painting uses water as a medium to reconcile transparent or translucent paintings. The paint expresses the picture, making it bright, moisturized, smooth, and rich in the unique beauty of water and color, and it has an inherent fit with the boneless and freehand brushwork of traditional Chinese ink painting. After the watercolor painting was imported into China as an independent type of painting, it has a familiar relationship with the traditional Chinese aesthetics. The Haipai ink paintings born out of Chinese culture naturally inherited the philosophy of Confucianism and Taoism, and the "God super reasonable" view of the universe is faintly found in the artistic creations of Haipai painters. However, the evolution of history always has its inevitable and accidental unity [22-24].

## 2. THE PROPOSED METHODOLOGY

### 2.1 The Haipai Ink Figure Painting

Chinese traditional color concept has an inseparable internal connection with traditional philosophy and aesthetics. "Huainanzi" mentioned: "The number of colors is no more than five, and the change of five colors is invincible." But this color law is mostly used in dyeing and weaving, but not all used in painting. However, the beginning of Chinese painting into the "age of colors" started with the "combination of color and ink" by Zhao Zhiqian, the leader of the Shanghai School in the late Qing Dynasty. Although Zhao Zhiqian only travels in Shanghai, he has not weakened his innovative achievements in poetry, calligraphy and painting. Zhao Zhiqian, who is good at boneless painting, has always admired Yun Shouping's painting concept of "learning from good fortune and rewriting one's life", which fits with the aesthetics of Western painting. His new paintings have caused a certain psychological shock to the Haipai painters. He uses the effect of color and ink blending to cultivate a fresh and common interest.

"The vulgar side of his paintings is first expressed in the use of painting colors. During this period, some of his flower works have rarely been rendered in ink but used rich and full colors, and the structure is outlined with ink lines. Haipai is a package. A special historical phenomenon with diverse connotations such as politics, culture, economy, and social life. The prosperity and development of Haipai culture has also promoted the rapid rise of Shanghai. Her people, water and soil, all give full play to this vast ocean. Features. The continuous entry of foreigners and the gathering of western businessmen have enabled the city to not only have modern craftsmanship after the five-port trade, but also the overall industrial and commercial and cultural and educational vision. The "Haipai" paintings were created under specific historical conditions. It is a special painting genre with Shanghai characteristics, and it is also a major turning point in the development and transformation of Chinese art.

Her abuse, formation, prosperity and development are milestone in the history of painting in our country. These couples who have been active in Shanghai for nearly a hundred years are not necessarily all Shanghainese. Some are artists living around Shanghai, but they often go to Shanghai to exchange art or trade works. Wang Qisen described in the book "Shanghai School Calligraphy and Calligraphy-Humanistic Spirit and Economic Formation Behind a Hundred Years of Glory": Shanghai School, as the definition and name of a regional artistic concept, represents an aesthetic spirit, creative form, group pursuit and style category. Originated from calligraphy and calligraphy, abused in Peking opera, and later covered the entire series of Haipai art.

### 2.2 The Analysis of the Artistic Features of Haipai Ink and Wash Figure Painting

As the birthplace of Chinese watercolor painting, Tushanwan Art Gallery has an extremely important influence on the synchronic interaction and concept formation of the Haipai painter class cultural circle. When Ren Bo, the representative painter of the Shanghai School, came to Shanghai at the beginning of the year, he went to the Tushanwan Painting Institute to learn watercolor painting and other techniques. "As far as I know, Ren Bonian's strong sketching ability is related to the fact that he used 3B pencils to draw sketches. His pencils were brought from Liu Dezhai. At that time, most Chinese people didn't know how to use pencils...".

Ren Bonian pays attention to the painting concept of sketching, and he can see the skillful use of shadow perspective in his works. His masterpiece of ink painting "Sour and Cold Lieutenant Statue" can be described as having both form and spirit. In addition to the treatment of clothes, the artist borrows from Yun Nantianzhi. Except for the use of a pen, the specific features of the faces of the characters are all expressed in the light and dark shadows of Western France. Good "eyes, minds and minds" close to the people's living habits. Subtle observation is also a good source of Ren Bonian's secular creation. In terms of market demand and trend dynamics, the western-style urbanized commodity operation mode also potentially guides the painter's creative inspiration. This is also the key to the "full foreign flavor" in Ren Bonian's ink paintings. As one of the eye-catching representative painters of the New Shanghai School of Art, Lu Fusheng's works are introverted and deeply accumulated, forming the "Lu's painting scheme", which inspires the curiosity of the viewers to ask the real world. He uses an artist, The publisher's bold courage exaggerated and flexibly shaped vivid works.

The composition is a comprehensive manifestation of a painter's comprehensive ability. Lu Fusheng's composition is influenced by Bada Shanren and Pan Tianshou, and he pursues a great combination. Tang Zheming said that his composition is "though it is simple but not too simple". Exaggerated composition is another way for decorative meaning to be embodied.

## 3. CONCLUSIONS

Haipai painting has always been the focus and hotspot of the study of the modern transformation of Chinese art. As a turning point in the history of modern Chinese painting, under the new atmosphere and social changes, it is attached to a brand-new economic model, namely, commercialized art market operation. Compared with traditional Chinese paintings, it has changed in many aspects such as aesthetic taste, living environment, and forms of sponsorship. These changes have also enabled Haipai painting to take the lead in forming a diversified artistic pattern in modern Shanghai, and for a long period of time led the development of Chinese painting in the new era.

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[23] Zhuang Zhou. As the century is drawing to a close, the good deeds in Wenyuan are quite addicted to the year-end inventory, such as arranging seats for the masters, white noses for clowns, etc., rewarding good and punishing evil, one after another, just like the last judgment. The author has since resigned from Qiyuanzhi The position is also quite good. However, as we all know, the author's master Lao Tan, and the Confucian style [J].

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# Digital Analysis of the Modeling and Pen-And-Ink Features of Wang Ziwu's Ink Figure Painting under the Background of Multimedia

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**Abstract:** This article will focus on the achievements of Wang Ziwu in ink and wash figure painting. Through the examination of his artistic experience, he will look for the historical reasons that formed the artistic characteristics of his ink and wash figure painting, and then deeply analyze the unique shape and language of his ink and wash figure painting. Explain his value and significance for the development of Chinese ink and wash figure painting, as well as the inspiration and guidance for my artistic creation. Based on the multimedia background, this paper studies the shape of Wang Ziwu's ink figure painting, and uses principal component analysis to extract, classify and model the ink and ink.

**Keywords:** Pen-And-Ink Features, Wang Ziwu, Ink Figure Painting, Digital Analysis

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## 1. INTRODUCTION

In the autumn of 1936, the painter Wang Ziwu was born in a special family in Wangqumachang Village, Xi'an City, Shaanxi Province. His mother died earlier, and his father also had some spiritual problems. Therefore, he was fostered in his aunt's home since he was a child. This special growth environment has made Wang Ziwu a tough and humble character. Although the environment in which he lived at the time was unsatisfactory, he never gave up on his persistent pursuit of art. After his own hard study, he finally achieved important achievements in painting and became one of the modern and contemporary Chinese figure painters. Representative [1-6].

His figure paintings have their own unique artistic language in the use of pen and ink, and they have been widely appreciated by the Chinese painting circle. Mr. Wang Ziwu, grew up in Chang'an County, and loved painting since he was a child. After graduating from middle school, he also engaged in art-related work. After the founding of the People's Republic of China, he entered Xi'an Academy of Fine Arts to continue his artistic path. During his studies in the Academy of Fine Arts, Wang Ziwu drew many portraits for his friends. The characters he painted are very deep and vivid. The works have already shown his own appearance. At that time, he had already painted many high-level works. In spite of this, Wang Ziwu still studied hard. Every hot summer, he always took advantage of his lunch break to paint in the studio. He knows how to cherish the opportunity to paint professionally and carefree, and he has tasted the taste of various schools in his hard training. Reading ancient works and the works of Qi Baishi, Xu Beihong, etc. are almost perfect, and I have learned a lot of nourishment from them. Even Repin's oil painting "Black Woman" can copy the effect of an oil painting on Korean paper, and the bronze ware makes a sound [7-14].

Wang Ziwu extensively absorbed and borrowed excellent artistic concepts and techniques, which allowed him to understand what a real Chinese painting is. The study of Western painting did not make him lose the essence of traditional painting. Although he did not advertise his own artistic innovation, his works actually exist in an innovative form. Wang Ziwu graduated from the Xiqian Academy in

1963. In his early years, he focused on the training of sketching and writing. In the 20th century, Wang Ziwu's ink and wash figure paintings were in the heyday of the 1980s. The work of Wang Ziwu in this period was aging in 1978. Characteristics of Wang Ziwu's artistic style. Through the comparison of his different works, it is found that Jiang Zhaohé's styling view of contemporary ink figure paintings undoubtedly have the deepest influence on him. Drawing on the strengths of Western drawing sketches, creating subtle realism skills suitable for modern characters is found in his works. W fully reflects. If you ask Wang Ziwu how many Chinese and Western artistic elements of his sketches of figures accounted for, it is actually very difficult to quantify. Judging from the overall appearance of his works, the humanistic spirit of his art is traditional in China, and the modeling foundation of W-shaped depiction of gods and bone method is Chinese style, and the realistic sketches of W are used to make the most subtle features and light and shade. The modeling method and the portrait format of the head and bust are Western style [15-21].

These constitute the artistic characteristics of Wang Ziwu. The process of merging the language of sketch and ink is undoubtedly a gradual process. Basically, it is from direct appropriation to appropriate adoption, from narrow understanding to open absorption, and grafting from the surface to the clues of integration and regeneration. The attitude towards sketching is also a process from narrow and extreme to open and peaceful. This is an inevitable process that contemporary realistic ink and wash figure paintings must go through. In the practical exploration of this kind of language connection, as pioneers in this field, the creative practice of Xu Beihong and Jiang Zhaohé has provided valuable experience for the expansion of the language of modern realistic ink and wash figure painting. Wang Ziwu's view of figure painting from life is in the same line as Jiang Zhaohé. It is derived from the actual sketching of models. It also effectively absorbs the modeling methods of full-factor sketch and structural sketch. Through sketching, the purpose of analyzing and understanding the painted object is achieved. Through some of Wang Ziwu's sketches of figure paintings, we can clearly see the relationship between the full-factor sketches embodied in his works [22-24].

## 2. THE PROPOSED METHODOLOGY

### 2.1 The Mr. Wang Ziwu Ink Figure Painting

Mr. is from Shaanxi. He is humble, not good at words, and knows that he will suffer. He always treats people with an attitude of being considerate of the other person, and he is really a "desireless" person. Therefore, his works are not at all gorgeous and impetuous. What he is most interested in is the pen and ink. Speaking of pen and ink, the famous contemporary painter He Jiaying once said that the person he admires most is Mr. Wang Ziwu. The husband weakened the shaping of realism, and strengthened the performance of freehand brushwork.

Sometimes they use the rhythm of continuous line drawing to create a unique painting context; sometimes they use the atmosphere of the environment to deepen the expression of the material sense and inner world of the person, and the artistic language has reached the perfect state. Mr. Wang Ziwu's use of thread is extremely free and easy and elegant, he is still good at dry ink, and the strokes of the pen are alternately reversed. He is extremely agile and lively. In fact, ancient and modern artists, whether it is Van Gogh or Qi Baishi, as long as his works can bring people the enjoyment of beauty, make readers have artistic resonance, and have the breath of the times, then he is a great artist. Nowadays, impetuous utilitarianism prevails, and the art field has a trend of "Great Leap Forward" in the late 1950s. Everyone knows that the form is for the content, there is no real content, no deep understanding and grasp of the content, no matter how good the form is, it is pale and empty.

Although the "exquisiteness" of his facial shaping is its main feature, he never seems to be satisfied with the external appearance of the object, but is a manifestation of the inner spirit and temperament. From the storm-beaten old fisherman, wit and courage In the works of Wang Ziwu, from the brave and brave militia company commanders, to the upright and indomitable overseas Chinese, and the generous, kind, hardworking and pristine ethnic minority old women, all have their own styles and looks, and have distinct personalities. At the same time, it is also in line with what he said: "Observe and understand the object carefully and deeply, experience more of people's inner activities, and always grasp the object's spiritual temperament, thoughts, emotions, and personality in order to get a deep and correct feeling.

### 2.2 The Multimedia

Multimedia remote training based on IP, network technology, and remote education system need to have the corresponding hardware and software environment, so the whole system is composed of three parts, namely communication network, terminal equipment and teaching resources, communication network and terminal equipment constitute the system. Hardware support environment is the software system and the teaching resources are software systems. Users can access this system in two ways: LAN and Modem dial-up Internet access. From the functional point of view, the system realizes real-time and non-real-time multimedia distance teaching functions and teaching auxiliary functions, and realizes online teaching resource sharing and networked teaching management, so the system is designed as three modules.

The real-time video interactive distance education system is mainly used for real-time teaching and can also be used for face-to-face discussion and answering and other occasions. Teachers can teach in one place. Students can listen to lessons

in real-time through the network in remote classrooms for real-time video/audio interaction. Follow ITU H.323 (Video over IP) It is recommended that point-to-point and multi-point multicasting (Multicasting) are two methods: the video/audio data of the teacher's real-time teaching is collected and compressed on a dedicated board. The data is IP encapsulated according to the TCP/IP protocol and the local area network IP Multicast mode propagation video/audio synchronization is controlled by MCU. Terminals participating in a multicast need to be set to the same multicast address.

Because the current control function of the network itself cannot meet the multipoint-to-multipoint control required by the real-time remote teaching system, a control component multipoint control unit (MCU) is needed to control the transmission and switching of information between various communication nodes. The basic function of a dedicated computer system is multi-point control of each terminal's video/audio signal mixing file transfer system, data sharing, etc. The media classroom realizes the terminal equipment function of the real-time remote education system. They are the customer application system under the control of the MCU. It is composed of an ordinary PC plus a dedicated board for the video conference system. Small desktop cameras and headphones. Rely on the computer local area network for connection.

Another professional term closely related to data mining technology is the Knowledge Discovery in Database (KDD) proposed at the 11th International Joint Artificial Intelligence Conference in Detroit, United States, which refers to the use of data found in databases.

### 2.3 The Analysis of the Characteristics of the Ink and Wash Figures of Mr. Wang Ziwu

As the successor of Jiang Zhaohe's realistic ink and wash figure painting, Wang Ziwu's understanding and comprehension of pen and ink expression is more profound and comprehensive. This is mainly due to his study of traditional landscape, flower and bird painting nutrition and calligraphy. During college, Wang Ziwu was a landscape painting major. He had a deep study of traditional landscape painting techniques. He not only drew nourishment from books and historical materials, sought inspiration, but also often went to the field to conduct inspections. "Story of Shizhongshan" is an excellent landscape painting completed by the painter after carefully trying to figure out Su Qiao's eternal masterpiece "Story of Shizhongshan".

There is also the huge landscape "Huang Ling Cypress" he created for the West Hall of the Great Hall of the People. The majestic and stubborn thousand-year-old cypress trees, whether they are trunks or branches, appear solemn and powerful, and they are not always reminiscent of the Huangzhi Plateau. Temperament. Wang Ziwu's flower and bird paintings are even more independent and highly accomplished. The subject matter of Wang Ziwu's ink figure paintings is very rich, including ancient historical figures, modern and contemporary calligraphy and painting masters, and ordinary working people. The ordinary people he portrays are very close to life, from children to young men and women, middle-aged men and women, and old men and women. He has dabbled in them, and uses different expression methods for different images, trying to show the true expressions of the characters in the most true manner. . Although Wang Ziwu's paintings depict the most ordinary people in life, each of his works is not ordinary. Behind each image represents a class of

people, glorious laborers. He applied ordinary life themes to his paintings, reflecting his spirit of attaching importance to sketching and deepening social life. In the work "Guanzhong Road", in the picture, three horses are marching forward with the food on the carriage and the driver. The driver seems to be singing the high-pitched Qinqiang on the loess slope, attracting many flocks of birds circling in the sky. With the characteristics of regional life in northern Shaanxi, the use of brush and ink in this work is also very interesting, simple and complicated, and the meaning of the brush and ink is intriguing.

### 3. CONCLUSIONS

It is understandable that Wang Ziwu has made such impressive achievements in the exploration of the brush and ink of sketching characters. However, when using Chinese brush and ink to express a large-scale, heavy and profound painting theme, he followed Jiang Zhaohe's "We haven't seen any more outstanding works since "Picture", which shows that Chinese ink and wash figure painting still has huge room for development, and this gap is exactly what we young painters should strive for, and we should take Wang Ziwu's achievements And his pen and ink spirit is well inherited and developed, and it is combined with Jiang Zhaohe's "The Refugee Picture".

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# Design of Computer Aided Platform for Nursing Professional Training under the Background of Interactive and Experiential Model

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**Abstract:**Based on the questionnaire survey method and the SWOT analysis method, the advantages and disadvantages of the application of AR technology in nursing training are analyzed, and the possible application scenarios of AR technology in nursing training teaching and countermeasures to meet the challenges are proposed. CAI application research has been carried out in the teaching of nursing procedures, and the interactive "nursing medical record writing training system" CAI courseware has been developed. The courseware is composed of 9 functional modules. It has the advantages of convenient use, good interactivity, strong test performance, and flexible expansion. It allows students to collect nursing information, make diagnoses, and make nursing plans through man-machine dialogue. It solves the difficult teaching problems that are difficult to solve by traditional teaching methods.

**Keywords:** Computer Aided Platform, Nursing Professional Training, Interactive, Experiential Model

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## 1. INTRODUCTION

Surgical nursing is a highly practical subject. Surgical nursing training is a main way for nursing students to master surgical nursing operation techniques. Traditional surgical nursing training adopts the teaching method of student observation, teacher demonstration [1], and nursing students' operation training. This method neglects the cultivation of nursing students' comprehensive nursing ability, which makes the nursing students have poor hands-on ability after entering the clinic and it is difficult to adapt to the nursing work [2]. Therefore, how to improve the teaching quality of surgical nursing training and enhance the practical operation and application ability of nursing students in an environment restricted by many factors such as practical training teaching conditions, equipment, funds [3], etc., is a very important topic [4].

The application of computer networks in the age of technology and information has penetrated into all aspects of social education [5], school education, family education, and management, and has gradually formed a modern education subject [6]. Computer multimedia-assisted teaching as an educational aid is being applied to the teaching of various medical subjects [7]. In the process. The operating room is a theoretical and practical work department that requires nursing staff to have a solid theoretical foundation and a high level of expertise to continuously meet the needs of nursing development under the new situation [8]. Combining operating room nursing teaching practice with can play an incomparable advantage in operating room nursing rounds. The research results of our hospital are reported as follows [9]. Computer-aided instruction (CAI) is a brand-new teaching form that uses computer technology to teach [10]. It

can comprehensively use a variety of media to effectively express teaching content that is difficult to express by traditional teaching methods, stimulate students' interest in learning, and improve teaching quality [11]. Since 1995, we have carried out CAI application research in the teaching of nursing procedures, and developed an interactive "nursing medical record writing training system [12]" (hereinafter referred to as the system) CAI courseware, which enables students to master the working methods of nursing procedures through man-machine dialogue [13]. In the past, the problems of theoretical understanding, method mastering, practical operation, performance [14] evaluation and other problems existed in the teaching, which were welcomed by students and praised by experts [15].

The network teaching platform is a brand-new learning environment based on modern computer networks. It can carry out interactive [16], synchronous and asynchronous teaching activities with learners by transmitting digital education information [17]. Compared with traditional education, the online teaching platform has the advantages of sharing educational information resources, unlimited time and space of activities [18], and convenient learning and communication. Geriatric nursing has been listed as a compulsory course by many college nursing majors in recent years. Because it involves multiple disciplines [19], there are many contradictions in teaching content and less class hours, focusing on practicality and systematic lack of theoretical knowledge for teachers and students to refer to the lack of teaching reference books and teaching reference materials affects the teaching effect [20]. The West Hospital of the First Affiliated Hospital of Guangxi Medical University is a tertiary class a general hospital, and computer operations are popular. Organize 24 nurses with the titles of junior nurses and above

in the undergraduate room [21], including 7 with junior titles, 12 with intermediate titles, and 5 with senior titles. After communication [22], they knew the purpose of the experiment and agreed to participate in the experiment. According to the technical title, the subjects were divided into three levels: junior high school and senior high school [23]. Then, according to the principle of stratified sampling, the subjects were randomly divided into observation group and control group [24].

From October 2015 to April 2016, a 6-month training course. The rapid development of computer technology, image recognition technology, sensor technology, simulation technology, etc., and the increasing popularity of smart devices have greatly enriched the forms of teaching. As an emerging technology, augmented reality technology (Augmented Reality, or AR technology) can provide a wealth of information entities on the basis of the real environment, and at the same time support full interaction with users, so that it has a broad field of education and teaching. prospect. In this article, through the analysis of the advantages and disadvantages of AR technology in the process of practical training and teaching.

## 2. THE PROPOSED METHODOLOGY

### 2.1 The Interactive and Experiential Model

In order to prevent the "overfitting" phenomenon in the BP network training and learning process and the established BP network model to have good robustness and predictability, the sample data set needs to be divided into a training set (Training Set) and a testing set (Testing Set) Two parts.

Since the data units of each sample collected by the BP network are inconsistent, it is necessary to normalize the original data of the training sample set to eliminate the influence of dimensions, which can speed up the convergence of the training network, accelerate the network learning speed, and ensure the established model It has sufficient sensitivity and good fit to the sample. In this paper, the training sample set data and the test sample set data are normalized by [0, 1], and the function  $\text{mapminmax}$  is used. The default  $\text{mapminmax}$  range is [-1, 1], which requires [0, 1] normalization. The formula is: BP network structure is composed of an input layer, an output layer and at least one hidden layer. Increasing the number of hidden layers can reduce network errors and improve accuracy, but it will also complicate the network and lead to training time. Too long and "over-fitting" phenomenon occurs. For a 3-layer BP network with a hidden layer, as long as the number of neurons in the hidden layer is large enough, any continuous function on a bounded area can be approximated with arbitrary accuracy.

Applying knowledge of cognitive psychology can allow designers to scientifically carry out industrial design work and ensure that industrial design products have humane characteristics. Designers should ensure that product design elements have identifiable characteristics, allowing users to clearly operate positions and operating methods, and at the same time receive effective feedback on operating behaviors. Designers should ensure that the design of industrial products has the characteristics of simple structure, so that the operation behavior is efficient and concise. In specific applications, designers need to effectively combine interactive design with advanced science and technology, such as the emergence of electric pressure cookers. The goal of cooking automation can be achieved. Designers need to ensure that the user's cognitive structure and product operation information

are highly consistent, and should analyze the behavior and living habits of industrial product users, such as college girls, expectant mothers, male workers, etc., to ensure that product design information is available Be accurately communicated. Designers also need to fully combine memory information and external information to allow users to effectively improve the efficiency of using products. For example, keyboard keys can allow users to achieve efficient work. Finally, designers need to ensure that the operation and display have a high degree of compatibility in interactive design applications.

### 2.2 The Nursing Professional Training

As a technology that can visualize complex processes in the physical world, AR technology can make teaching more vivid and intuitive. In surgical nursing training, it often involves the introduction of the functions of some internal organs of the human body and the use of some precision medical tools. In traditional teaching, the auxiliary teaching tools used by teachers include real-size models of organs, pictures, videos, and legends. These auxiliary teaching tools usually only provide a fragmented view of the body, which is relatively abstract. As a result, nursing students only pay attention to a certain part of the body, and it is difficult to connect it to the entire body of the real patient

The use of AR technology can achieve in-situ visualization, which can provide a higher degree of body transparency, and help nursing students understand the structure and function of the internal organs of the human body. In foreign countries, existing institutions have tried to use AR technology as teaching support in nurse training to teach lung anatomy and physiology. Students can use the mouse to operate according to the three-level headings A, B, and C + the first two characters of the first two characters of the heading. Even students who do not understand computer knowledge can also use the online help and the medical record standard format authorization help function to use the system smoothly. In recent years, with the development of college informatization, network teaching has become an important development direction of teaching reform. At present, heuristic, discussion, interactive and other teaching methods are mostly used in geriatric nursing teaching. It is mainly teachers who play a leading role. Teachers teach content in class. It is difficult for all students to understand in a short time. Students review and discuss after class. The resources needed for communication and communication cannot be resolved. The construction of the student-assisted area solves the needs of students to learn elderly nursing knowledge. The platform provides a wealth of teaching resources for elderly nursing, and students can learn according to their own learning interests.

The design of AR training teaching system is very important to its application. First, the design of the program must conform to the principle of human-computer interaction, simple and clear, so that nursing students can quickly get started; second, because the system involves a lot of surgical nursing expertise, the development of the system requires the collaboration of technicians in multiple fields. In addition, the medium in which the system is used is also an issue that needs to be discussed. The devices that can be equipped with AR systems include mobile phones, computers, smart glasses, etc. How to choose a suitable device medium to balance the cost of the device with the teaching effect is a factor that has to be considered.

### 2.3 The Computer Aided Platform for Training Nursing Professionals

Surgery coordination, surgical positioning, use of specialized instruments, and disinfection and sterilization methods of instruments are all archived in the operating room computer teaching database. Knock image processing software mainly processes and synthesizes special effect processing for the images of digital cameras, and inserts them to make the courseware have rich pictures and texts to deepen the impression and make it easier to understand and remember. The animation design software integrates the video taken by the digital camera into a dynamic effect in the form of animation and sound. The nursing staff standardizes the process after watching it, and establishes a standardized reference with a template. Our department has not yet applied visualized professional web design software. With the reform of the new tertiary hospital, this part of the work is accelerating the pace of construction. Students can complete the simulation operation of collecting data and formulating nursing plans through man-machine dialogue, and master the operation methods of nursing procedures and the skills of correct and standardized nursing medical records.

The teacher supplementary area realizes the real-time interaction between teachers and students, and between students and students in the network environment. Through online discussion, students can obtain the latest teaching content at any time, and communicate with teachers, which enhances the communication between teachers and students, so that learning is no longer restricted by time and place, and has greater freedom to give full play to students. Enthusiasm and initiative have improved the learning efficiency and effect of students, and more reflected the individualized and interactive learning characteristics of learners. Teachers use the online Q&A platform to conduct statistical analysis on the type, number, and frequency of students' questions. Teachers understand the doubts, difficulties and main problems encountered by students in learning, and guide students in a more targeted manner, providing a realistic and effective way to achieve personalized teaching.

### 3. CONCLUSIONS

The successful development of the "Nursing Medical Record Writing Training System" is our first attempt to use CAI in nursing teaching. Practice has proved that the system is scientific, advanced and practical, easy to use, solves the key and difficult problems in teaching, and improves the teaching quality of the course. It is not only suitable for students to learn nursing procedures, but also can be used for clinical nursing staff Carry out training and assessment of nursing medical record writing and formulating nursing plan. In nursing teaching, the use of CAI technology is not only feasible, but also the needs of the development of the times. The unique advantages embodied by CAI will surely promote the reform and development of nursing teaching.

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# Realization of Fuzzy Evaluation Platform for Public Physical Training Quality in Colleges Based on Gray System Coding Algorithm

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**Abstract:**Based on the fuzzy comprehensive evaluation theory, an index system for the quality evaluation of public physical education in colleges and universities is established, and the weights and potentials of the corresponding indicators are obtained through the expert scoring method and the analytic hierarchy process. This paper focuses on the GM (1,1) model, the equal-dimension gray number complementary dynamic model and the periodic correction model, and puts forward an improvement plan for the shortcomings and defects of the prediction algorithm. and analysis of development trends. It provides new methods and ideas for the more scientific and rational development of the teaching quality evaluation system of public physical education in colleges and universities.

**Keywords:** Fuzzy Evaluation Platform, Public Physical Training Quality, Gray System Coding Algorithm

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## 1. INTRODUCTION

Classroom teaching evaluation is based on the requirements of the curriculum and syllabus, the characteristics of students' physical and mental development and the principles of classroom teaching [1]. Improve teaching quality and provide reliable information and scientific basis [2]. On the basis of physical education teaching and extracurricular sports activities, the school carries out various forms of after-school training to improve students' sports skills, holds small and diverse competition activities, and requires at least one track and field-based event every year. School-wide sports meeting [3]. The teaching quality evaluation system studied in this paper is mainly based on B/S and adopts the framework of workflow technology. It reflects that the teaching quality evaluation system is more suitable for the online office of sports colleges [4], and can be integrated with the digital campus system to provide unified online office services. And through continuous improvement to achieve systematization and networking [5].

Theoretically, the GM(1,1) model is a continuous time function, which can extend from the initial value  $X^{(0)}(1)$  to any time in the future, but as time goes by, some disturbance factors in the future will affect the system [6]. The farther the future time is, the larger the gray interval of the predicted value. How to improve the teaching quality of public physical education is particularly important [7]. The more similar the curve geometry, the greater the correlation degree will be, and vice versa. The existing grey correlation analysis methods include Dun's correlation, area correlation, slope correlation, relative variability correlation and other methods. Deng's grey relational analysis method is one of the classical analysis methods. The science of evaluation activities. quality [8] of students. The evaluation of college physical education teachers in foreign countries is included in the evaluation of teachers [9]. The research started earlier, and the related

theoretical and practical research is also relatively systematic. The most representative ones are the developmental education evaluation in the United Kingdom and the United States [10].

The establishment of the American Evaluation Association in 1985 marked the in-depth development of the professional research on educational evaluation [11] in the United States. Information is an important aspect of the overall movement of matter in nature. People need to obtain various information to understand and transform the world. Image information is the main source for humans to obtain external information, because about 80% of the information is obtained through the human eye [12], and the human eye obtains image information. It is very important to obtain image information, but the purpose is not only to obtain images [13]. The evaluation of Compared with other analysis methods, the evaluation index of this paper is to apply the knowledge of physical education, education, psychology and other disciplines. 50 questionnaires, 45 valid questionnaires were collected), expert discussion method (10 experts) and logical analysis method to construct, it should also meet the needs of students in sports and social development [14].

The traditional methods of physical education teaching quality evaluation in my country are: the combination of usual assessment and regular assessment [15], the combination of personal self-assessment and the democratic evaluation of the masses, and the hierarchical structure of system use cases, which can be described and designed more clearly. System use cases are divided into different packages for integration [16]. A package represents a group of related system use cases. At the same time, different packages also correspond to different functional classifications, and each package acts as a functional subsystem [17]. The evaluation of teaching quality is a value judgment made on teachers' teaching ability and teaching effect of the class as a whole. , so

the predictive data of the GM(1, 1) model is only one or two data after X'0' (curse), and other data can only represent the existing conditions unchanged [18], based on the private undergraduate degree in Henan Province and the index weights were calculated and obtained according to the analytic hierarchy process, which solved the multi-objective in the evaluation system. The grey relational evaluation model of college campus security problems In order to understand the current situation of teaching quality evaluation of public physical education in private undergraduate colleges and universities in Henan Province [19], find out the reasons for the deficiencies, research and sort out the methods to solve the problems, in order to improve the teaching quality evaluation Provide practical and effective solutions [20].

## 2. THE PROPOSED METHODOLOGY

### 2.1 The Gray System Coding Algorithm

Second, the mode of teacher evaluation has changed The evaluation indicators of this paper are the application of physical education [21]: in modern educational evaluation, it is emphasized that the evaluator and the evaluator have a continuous dialogue throughout the evaluation process, that is, to revise each other's views, so as to Make evaluation conclusions as consistent as possible [22]. At present, due to the education, psychology and other disciplines knowledge, the general development research trend of image processing is mainly digital processing, because this method has many advantages such as high processing accuracy, many grayscales, complex nonlinear operations, and good repeatability.

Determine the weights  $A=(a_1, a_2, \dots, a_n)$  of the evaluation factors. Since the importance of each factor in  $U$  is different, it is necessary to assign different weights to each factor, where  $a_1$  is the weight of the evaluation factor, and  $\sum_{i=1}^n a_i=1$ . Using the GM(1,1) model to predict the sequence, a relatively light exponential growth curve can be obtained, but it is difficult to reflect the random fluctuation of the sequence. In this case, the residual period correction model uses a sine (or cosine) curve to fit the residual sequence. Grey system theory is a complete theoretical system covering grey system theory and grey system analysis methods.

Expert discussion method (10 experts) and logical analysis method, the index weight is calculated and obtained according to the analytic hierarchy process, which solves the multi-objective in the evaluation system. The goal of physical education is the center of physical education classroom teaching. gray system is mainly described by the gray equation containing the gray coefficient (referred to as gray element). The key to study the gray system is to whiten, quantify, model and optimize the gray elements by processing them. Gray relational analysis is the main content of gray system analysis theory, and its basic idea is based on the geometric shapes between geometric curves. Analysis and comparison, that is, the closer the geometric shapes are, the greater the degree of correlation between the corresponding sequences, the closer the development and change trends are, the greater the degree of correlation, and vice versa.

### 2.2 The Quality Assessment of Public Sports Training in Colleges and Universities

Whether the setting is specific and practical directly affects the effect of a physical education class. In 2002, "National College Physical Education Curriculum Teaching Guidance Outline", and it is a relatively definite and invariable parameter to obtain the answer of gray system whitening. The idea of gray system modeling is to turn an unclear gray system with insufficient overall information from gray to white in terms of structure, model, and relationship. The grey relational degree pointed out five target areas of physical education curriculum teaching: "mental health target, physical health target, social adaptation target, sports participation target, sports skill target", that is, the relative changes over time in the development process, and use the closeness of their changes in magnitude, direction and speed. measure the correlation between them.

Physical education classroom teaching evaluation is the product of modern education and scientific development. It is different from the general physical education teaching inspection and evaluation that people are familiar with in the past. It has a relatively complete set of theories and methods. , but also from various angles and according to different standards. When using Dunn's grey relational analysis method to analyze a complex system, firstly, it is necessary to select the evaluation data series that reflect the characteristics of the system's behavior, teaching can be obtained. The evaluation grades in Table 1 are obtained by statistics and normalization of the scores of 30 students in a class.

It is called the mapping quantity of the system's behavior, and it is used to indirectly represent the system's behavior. The The principle is shown in the figure below. The standard data sequence curve representing the best campus security status. activities and extracurricular sports training for the whole school. They undertake the training tasks of high-level sports teams in the school, and plan and organize various sports competitions throughout the school. forming teams to participate in sports events at all levels. There are 365 students who think that the content of physical education is "general", accounting for 31.20% of the total number, and some students are not very represents the data sequence curves of the four schools participating in the evaluation. is related to the school's curriculum arrangement. Through investigation, it is known that some schools fail to set sub-item physical education teaching according to students' interests and hobbies.

Among them, the "fuzzy comprehensive evaluation method" is a method to comprehensively evaluate the on the evaluation of experts and students. The evaluation content is: (1) Expert evaluation standards; general physical education classroom teaching quality evaluation adopts a certain index system to form a scoring table standard for experts, which is conducive to the operation and application of classroom teaching evaluation. , mainly including first-level indicators (teaching preparation, teaching process, teaching effect).

### 2.3 The Physical Training Quality Fuzzy Evaluation Platform

Physical education is inseparable from the design, arrangement and dedication of physical education teachers, but it is also inseparable from the diligence and cooperation of evaluation object based on the fuzzy mathematics fuzzy set theory, which is in line with the educational phenomenon.

plays an important role in improving the quality of physical education teaching.

It can be seen from the figure that the most similar geometric shape to the standard data series curve is the school evaluation data series curve. In the notice of the Ministry of Education on printing and distributing the "Guidelines for the Teaching of Physical Education Courses in National Colleges and Universities", it is mentioned in the eighth requirement that according to the overall requirements and actual conditions of school education. In the physical education courses, various types of sports should be open to all students. The physical education curriculum can break the original department and class structure. In order to evaluate and analyze the data sequence of the participating objects, it is necessary to determine the evaluation standard data sequence for reference.

The evaluation of these indicators is divided into 5 levels; "very important", "important", "relatively important", "generally important", "not important". System users (administrators, teachers, students) all use the login number (Work number, student number) as the system login account, you can use the maintenance module to maintain your own login password, and you can log in to the system after the identity, account, and password authentication. Neural network has been widely used in image segmentation, among which BP network has many applications and is relatively mature. And it can more comprehensively collect the opinions of various evaluators, because the number of nodes in the hidden layer affects the generalization ability of the network (the trained BP network, for those not in the sample set, input also gives the appropriate output).

### 3. CONCLUSIONS

On the basis of the second-level fuzzy comprehensive evaluation for leadership evaluation and self-evaluation, a fuzzy comprehensive evaluation is carried out to obtain a more comprehensive, scientific and objective evaluation result. This paper proposes a grey relational adaptive mean filter algorithm. It mainly includes teaching ability, guiding ability, learning ability, organizational management ability, creativity ability, ability to use information tools, scientific research ability and social activity ability. The content of teaching quality evaluation is mainly evaluated from the aspects of teaching attitude, teaching method, teaching content, teaching process, and teaching effect.

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# Path Optimization of Physical Education Teaching Quality Management Integrated with Modern Network Technology

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**Abstract:** This paper analyses the problems existing in the management concept, management mode, management system and management method of the physical education teaching management system in colleges and universities and discusses the feasibility and necessity of integrating network technology into the physical education teaching management system in colleges and universities. And referring to the theory of modern network technology, it puts forward corresponding optimization measures for the above existing problems. The four aspects of the learning acquisition degree explore the optimization path of the quality of physical education teaching in colleges and universities.

**Keywords:** Path Optimization, Physical Education, Teaching Quality, Modern Network

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## 1. INTRODUCTION

Teaching quality is the lifeline of higher education in our country. With the improvement of my country's economic strength and national status, the national policies of "rejuvenating the country through science and education" and "strengthening the country through talents" have put forward more in-depth and higher-standard requirements for the cultivation of higher education talents. With the continuous deepening of the reform of physical education in colleges and universities. The current quality management system of physical education teaching in colleges and universities can no longer fully meet the requirements of improving the teaching quality in an all-round way. To seek sustainable development of sports in colleges and universities, innovations must be made in management concepts, management models, management systems and management methods. This article combines the actual situation of physical education teaching in colleges and universities. Learn from the advanced quality management theory to discuss the optimization of the quality management system of physical education teaching in colleges and universities. The European Union of Students put forward the concept of "student-centered learning". It is believed that "student-centered learning" is not only a concept and culture of colleges and universities, but also a new learning method.

Learning paradigms have not only triggered changes in higher education but have also triggered transformations in higher education. The learning paradigm does not give us a clear development framework but re-examines higher education with a new perspective. The introduction of ISO9000 is a powerful guarantee for continuously improving the quality of physical education teaching in colleges and universities. Colleges and universities monitor the quality of physical education at any time by establishing and operating a process-based physical education quality management system. And through the quality policy, quality objectives, and internal audit, management review, continuous improvement and other procedures required by 0, the self-improvement of the management mechanism is constantly realized.

In short, it is necessary to introduce and implement the optimization of the teaching quality management system in

the physical education teaching quality management system in colleges and universities. The students themselves are not interested in physical education. Do not accept the content of classroom learning. The class is just to cope with the school curriculum, plus the content of the physical education curriculum is old-fashioned. The construction subject deviates. Student engagement is neglected. Students have become the objects of education and teaching, which seriously affects the quality of physical education teaching. The university curriculum construction of this one-way knowledge transfer mode can no longer meet the needs of effective teaching. It leads to the alienation of students' "science world" and "life world". College courses generally adopt a modular approach, subject to strict time and space constraints, it is difficult to meet the individual needs of students.

From this point of view. The connotations of "customer-centered" and "student-oriented" are consistent. It's just that the former is the foothold. The latter is the starting point. Build a "customer-centric" management concept: first. Colleges and universities should investigate, identify, and understand the needs and expectations of students and other customers for physical education services. And ensure that these needs and expectations can be effectively communicated in the entire physical education management system: Second, based on fully considering all needs, university leaders formulate quality policies and objectives for physical education in colleges and universities. The quality values of departments and individuals at all levels of physical education quality management are coordinated.

## 2. THE PROPOSED METHODOLOGY

### 2.1 Main Problems Existing in the Quality Management System of Physical Education Teaching in Colleges and Universities

Form a multi-level value concept system with a common point. The quality evaluation of physical education teaching in colleges and universities in my country follows the logic of management accountability, and teaching evaluation is mainly used as a means of school accountability and strengthening teaching management. The teaching evaluation of physical education teachers is hardly carried out from the level of

students' "learning", but mainly from the level of teachers' "teaching". For example, whether the classroom preparation is sufficient, whether the course organization is reasonable, whether the course content is appropriate, etc., through the evaluation, the quality of the evaluation results is used as an important indicator for the promotion of teachers' professional titles and salary determination. This assessment appears too materialistic. Did not meet the standards of teaching and educating people. The principle that logical analysis or intuitive judgment of data and information is the basis for effective decision-making.

College sports managers need to use a scientific attitude, based on facts or data and information, and make correct decisions through scientific analysis to effectively manage college sports. The management methods based on facts include: first, teaching process monitoring. Colleges and universities through the establishment of physical education information network. Including channels for information exchange and feedback mechanisms for all staff. Feedback the relevant information and data found and collected in daily teaching and management activities to teaching managers in a timely manner. And ensure that these information and data are accurate and reliable enough so that managers can adopt flexible strategies and measures to deal with the problems found in a timely manner according to the feedback information. The construction content of college physical education courses should choose the value orientation that promotes students' high-quality learning.

Give full play to students' ability to explore the options of university course content. Students are the active constructors of their own knowledge. Under the guidance of the "knowledge guide" teacher, based on the original knowledge and experience, the process and result of the interaction between the teacher and the students is the new course content that needs to be learned. The initiative and enthusiasm of the new course content knowledge mobilizes the creativity of both teachers and students. The course content jointly created by teachers and students is challenging for students, satisfies students' curiosity about the unknown world, and improves students' interest in learning. Colleges and universities collect information such as physical education quality management performance, teaching evaluation, stakeholder satisfaction and other monitoring data, analyze existing problems and gaps based on quality objectives, find out causes and related factors, and identify areas and opportunities for quality improvement .

After running the physical education quality management system for a period. Through internal audit and management review to fully understand and master the operation of the quality system. in university education. Teaching and learning are interconnected. There are not only teachers' teaching, but more attention should be paid to students' learning. Universities are places where learning activities are generated by imparting knowledge. The real purpose of teaching is to stimulate students to learn and cultivate high-quality talents. Teaching resources are designed to create a good learning environment for students. Teachers are only helpers and supporters of learning. Real learning is the construction of learners' personal knowledge. As far as students' learning is concerned, teaching does not necessarily lead to learning, and it does not mean that what is taught must be learned, let alone how much is taught.

## 2.2 Elements of the quality management system of physical education teaching in colleges and universities integrated with modern network.

The quality manual is the first-level document, which is used to describe the policy, goal, organization, and responsibility of teaching quality, and to determine the interaction between the teaching quality system and internal processes: the second level is the program document. It is used to describe the various departmental activities or related responsible personnel involved in the teaching quality system management process, and clearly stipulates the responsibilities of departments or personnel in the process of management activities, as well as the methods of implementation and verification: the third level is the implementation documents. Formulate special teaching quality plans and measures, clarify the allocation of teaching resources, the sequence of management activities, evaluation methods and standards.

And the format of the content that should be recorded. Under the learning paradigm, taking students' learning as the center requires changing the teaching methods of teachers and the learning methods of students. Academic exchanges between teachers and exchanges between teachers and students create conditions for teachers to discover their own problems and produce new ideas, further improve teaching methods, and transform teaching styles. From another angle. Teaching development should be reflected in teaching research. Teachers innovate through teaching methods. Promote interactive learning between teachers and students. Students should be the subjects of the learning process and students should be responsible for their own learning. The quality policy of physical education teaching in colleges and universities is the quality criterion for all members of the physical education organization to participate in various sports activities.

To engage in physical education teaching activities, we must first clarify the quality policy of physical education teaching and accurately position the quality goals; secondly, we must ensure the stability and suitability of the teaching quality policy. The goal of physical education teaching is to improve students' physical fitness, while the goal of other disciplines is generally to develop students' intelligence. There are certain differences between physical education and other disciplines, with uniqueness and inherent requirements. Although the teaching administration department of colleges and universities has a certain relationship with the physical education department, the responsibilities between the two are clear. Teaching has its own basic laws. Physical education is an independent branch in college education and teaching. Physical education must implement teaching according to its own basic laws to reflect the meaning and value of its own existence. The "student-centered" learning paradigm expresses the partnership between teachers and students, which promotes teaching and learning to go hand in hand and complement each other, which is an important part of curriculum construction. The dynamic nature of the curriculum, the construction of the curriculum must be dynamic and open, so that students can transform from the receiver of knowledge to the constructor of knowledge.

The dynamic adjustment of students' personality development should be strengthened. For students, it is very necessary to dynamically adjust the curriculum according to the learning situation. The interconnection between different teaching

research and learning situations is related to the achievement of learning effects. The quality of teaching in colleges and universities mainly depends on the teaching level of college teachers. The establishment of a teaching quality management feedback system can help colleges and universities understand the situation of teachers in class and students' learning conditions. Online evaluation of teaching by students is a good form of feedback for teaching quality management. In short, to continuously improve the teaching quality, it is inseparable from the teaching quality management feedback system.

### 3. CONCLUSION

As a service, physical education teaching in colleges and universities must meet the needs of students as the core. Only by updating the concepts of physical education teaching and teaching quality management, clarifying the ideas of teaching quality management, improving the teaching quality management system, and establishing a sound teaching quality management system can we comprehensively improve the level of physical education teaching quality management and improve the quality of physical education teaching. While cultivating students' independent learning ability and habits, teachers are also improving their academic quality. Teacher development and student development are integrated to give full play to their own maximum value. Complete the common goal of teachers and students and promote the connotative development of my country's higher physical education.

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# Java Data Structure Optimization of Talent Training Performance Evaluation System Based on Distributed Hierarchical Data Clustering Algorithm

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**Abstract:** In the implementation scheme, the data source uses the message middleware Kafka, and the intermediate results are stored in the memory database Redis through serialization technology. Multi-faceted experimental results and analysis show that social environmental factors, social value orientation utilitarian. Based on this, the following main countermeasures are put forward to enhance the endogenous motivation of applied talents to cultivate college students: to stimulate their own endogenous motivation from the student level, to improve their own subject consciousness, to adjust their own need's structure, and therefore to teach mixed data structure based on Java. Demonstration system for optimized design. First, we should optimize the design of the framework of the hybrid data structure teaching demonstration system, and then optimize the design of the teaching demonstration database, that is, optimize the design of the database tables.

**Keywords:** Java Data Structure Optimization, Talent Training, Performance Evaluation System, Data Clustering Algorithm

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## 1. INTRODUCTION

In 2003, the famous financial writer Michael Lewis wrote "Moneyball: The Wisdom of Winning in Adversity" (Moneyball), describing the way Billy Beane, the general manager of the Oakland Athletics baseball team, used big data to gain a huge advantage. Story [1]. Recommendation engine technology was first proposed to discover user preferences through data mining algorithms, and to predict the products that users may be interested in by comparing them with product attribute information. This idea has been widely used in various e-commerce websites [2].

Special intelligence research and judgment is an important module in the Jinguan Phase II project, which refers to the process in which intelligence personnel use the model provided by the information system to analyze and judge the research and judgment tasks. The comprehensive research and judgment model is based on business experience [3]. After induction and refinement, it is divided into two major contents: enterprise theme research and judgment and commodity theme research and judgment. Conscientiously fulfill the responsibility of employee development, thoroughly implement the policy that talents are the first resource, fully implement the strategy of cultivating talents to strengthen the enterprise [4], strengthen the construction of the workforce, cultivate leadership and backup members, establish, and improve democratic management and democratic supervision of employees, and enhance team cohesion, Realize the personal value of employees [5],

Promote the majestic development of enterprises. Data mining, also known as knowledge discovery, is described as extracting implicit, potentially useful, human-understandable patterns from data [6]. Data mining improves the deep understanding, understanding and application of large amounts of original data by data owners by discovering useful new laws and new concepts. Not being able to apply what they have learned is a headache for the entire society and employers at present. Under the background of the new era development trend of "mass entrepreneurship and innovation" [7]. At the same time, the sustainable development of applied

talents with social responsibility, practical ability and innovative spirit is the most important part to support my country's economic development, and it is also the part with the least talents [8].

However, big data can only generate correct and valuable information through reasonable data mining. Before the 2016 U.S. election, Microsoft's PredictWise [9], The Upshot of The New York Times, and Princeton's Sam Wang all predicted that the probability of Trump winning on the day of the election was only around 10%, but in the end, it was Trump with 306.: 232 votes result a big win. Take Microsoft as an example [10]. In the real-time news recommendation service, user interest modeling and content mining and extraction of news texts can be done periodically offline. When users use the recommendation service, they need to process the user's interest matching with the latest news in real time. The processing speed is slow, and the recommended result delay is long [11].

Commodity information is a part of customs declaration information, which is mainly described by fields such as commodity tax number, commodity name, specification and model, and country of origin [12]. Among them, only the product tax number and the country of origin are normalized, and the product name and specification model are all unchecked strings. Performance evaluation is the most important part of the performance management system [13]. The performance evaluation work is the beginning of the entire performance management process. The performance management personnel should evaluate the evaluation object based on the business objectives and strategies of the enterprise, and then correspond to the evaluation results [14].

Applying data mining technology to e-commerce and mining these data can find out this valuable "knowledge". Based on this "knowledge", corporate users can grasp customer trends, track market changes, and make correct and targeted decisions, such as improving websites [15]. From the perspective of the current demand for talents in my country's economic and social development, undergraduate-level higher education is the priority The task is to cultivate a large



number of applied talents [16]. With the popularization of higher education, university education has achieved a leapfrog extension development, but at the same time, the connotative development has not been able to maintain a consistent pace. This is indeed the case. The current problem faced by big data is not the amount of data, but the quality of the data, big data is about the relevance of the data [17].

The greater the correlation, the higher the data quality, and the more accurate the applications based on this will be. How to establish a strong correlation of data in the data ocean and continuously optimize the algorithm and mathematical model can be described as the current big data application field key. The recommendation result has a long delay, which will seriously affect the user experience. The matching process between massive news texts and users is the main reason for performance loss: the information is redundant, and the distribution is disordered in the case of unprocessed news text data.

## 2. THE PROPOSED METHODOLOGY

### 2.1 The Distributed Hierarchical Data Clustering Algorithm

The two core parts of the FP-Stream algorithm are the global frequent pattern tree Pattern-Tree shown in Figure 3.1 and the skewed time windows embedded in the pattern tree. The frequent pattern tree reflects the frequent patterns in the current time window, and its structure is like FP-tree, which is conducive to subsequent reuse of the FP-growth algorithm. The system can use Storm-based distribution based on user behavior records and expert outfit data. The parallelized stream association algorithm DPFP-Stream algorithm mines the recommendation results of related products; All kinds of data involved in the system are reasonably designed and stored in the database.

Involving millions of products, tens of millions of users, and purchase data of 100 million, it is necessary to achieve low latency, load balancing, and accurate and efficient prediction. Mechanical word segmentation is also called word segmentation based on string matching, and its principle is to match text with existing dictionaries one by one. The advantages of this type of algorithm are low time complexity and fast word segmentation. The disadvantage is that the dependence on the dictionary is stronger, and the effect is not good when dealing with ambiguous words. Haiyan Power Supply Department consists of General Office, Finance Department, Electricity Section, Emergency Repair Section, Power Distribution Section, Engineering Section, Metrology Section, Low Voltage Section, Business Hall, Marketing and Scheduling and two power supply offices. The total number of employees has reached people, including regular employees, employed employees, and rural power workers. The clothing shopping recommendation system needs to realize the following four main parts: the realization of the clothing shopping website, providing users with a platform for purchasing goods.

The implementation of the data source generation module is the preparation for generating the recommended results. To adapt to the application scenarios of high throughput and high concurrency, the system uses Kafka to implement this module. The previous text clustering algorithms are usually only based on text feature for clustering. Clustering based on text content, that is, clustering based on literal similarity, usually introduces more noise, and cannot identify synonyms,

resulting in low similarity of text objects and too many clustering results.

### 2.2 The Talent Training Performance Evaluation System

Dendrogram itself is also a tree, and the mathematical meaning of its branch nodes is when two nodes are merged at layer  $d$  of Dendrogram. Openness principle: The assessment may be based on different periods, and its focus will be different. The manager should explain the criteria, procedures, methods, time, and other matters of the assessment to the assessed and inform the assessed about the focus of the assessment as soon as possible.

College students need to have correct self-awareness and self-cognition ability, which is the premise for college students to form the subject consciousness of applied talents training in colleges and universities, so that college students can understand their own subject status, ability, and value in the process of college application-oriented talents training and even in the future development. Compared with the traditional teaching demonstration system, this teaching demonstration system has more stable system performance, faster teaching demonstration speed, more comprehensive database, and more excellent overall performance. The system's clothing shopping website is developed in MyEclipse using Java language, the server uses Tomcat, and the client uses the Web terminal to display.

The clothing website mainly implements five modules: registration, login, viewing products, adding to shopping cart, and purchasing. In the application of personalized news recommendation engine, the news clustering system belongs to the background processing process of the system and does not need to interact with users., just interact with the data in the background database. The location of the clustering system in the news recommendation service architecture is shown in the figure. For hierarchical clustering, whether it is a single-connection, fully connected or average-connected hierarchical clustering, when each layer of clustering is calculated, it is necessary to measure the distance between all categories to find the categories that meet the merge requirements. Any division of data points will cause the loss of distance information between categories. Use interviews and questionnaires to collect information and data and use brainstorming and fishbone diagrams to analyze the information flow and data flow in the work. Sort out and find problems in existing performance evaluation programs and their causes.

### 2.3 The Java Data Structure Optimization of Talent Training Performance Evaluation System

It is mainly used to store data about individuals and groups, business departments and enterprises. The optimization design of this hybrid data structure teaching demonstration system mainly involves the optimization of the teaching demonstration database. Database optimization is a hierarchical clustering constructed for the system application environment, whether it is a single connection, a complete connection, or an average connection. When each layer of clustering is calculated together, it is necessary to measure the distance between all categories and find the category that meets the merge requirements. For any division of data points, the distance information between categories will be lost.

Participate in the process of cultivating applied talents with a proactive and subjective attitude. Of course, it is necessary for college students to actively enrich their own knowledge and experience and expand and supplement their own cognitive scope. For the item\_id of the product to be predicted, first check whether there is an item\_id of the product to be predicted from the item Recommend in Redis. The first three items are returned; otherwise, the similarity between the word segmentation result terms of item\_id and the terms of the key in item Recommend is compared. If the word segmentation results are the same, it reaches more than 80%. The functional test environment of the system is shown in the figure, and the experimental database is deployed on the data mining server. On the other hand, if the news clustering system department is on a single station in the same local area network, the data exchange between the two, including the original news data and the generated clustering results.

The risk analysis model in the special research and judgment of customs intelligence is a data model for grouping statistics of customs declaration data for enterprises, commodities, personnel, and other special topics. Aiming at the problems existing in these data models and the status quo of customs commodity data, this paper designs a short text clustering system based on the MapReduce framework. Carry out safeguard measures such as performance feedback and appeals to promote the smooth operation of the optimized performance evaluation system. Or provide preferential policies to retain high-churn customer groups, etc. The data required for data mining of e-commerce system are mainly seven contents, seven structures, dead usage records, background information of customers, transaction data, query information and so on. These data have the characteristics of distribution, heterogeneity, sparsity, high dimensionality, and mass

### 3. CONCLUSIONS

For the intermediate results generated by the DFPF-Stream algorithm, a Redis-oriented serialization algorithm is designed, which not only ensures data security, but also reduces network transmission overhead, and its efficient read and write efficiency is verified through experiments. Many large enterprises have begun to deploy their applications on the Java platform and introduced service-oriented software architecture into the construction of data mining systems. At the same time, the key technology of distributed data mining method in e-commerce is studied and Java also has a very broad development prospect in the computer field. The optimized design of the mixed data structure teaching demonstration system based on Java can fully develop the functions of the teaching demonstration system and fully demonstrate its advantages.

### 4. ACKNOWLEDGEMENT

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# Core Orientation, Practical Difficulties, and Innovative Strategies-Thoughts on Deepening the Reform of Vocational Education Evaluation in the New Era

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**Abstract:** Vocational education is different from basic education, and its comprehensive evaluation should have distinct professional characteristics. Constructing a new vocational education evaluation system and promoting vocational colleges to cultivate high-quality applied talents with professional characteristics have become an important topic of vocational education in the new era. Based on the analysis of the four outstanding problems in the current vocational education evaluation system, this paper needs to learn from the successful experience of the construction of the western vocational education evaluation system, establish scientific values for the development of vocational education, continue to improve the legal system of vocational education evaluation, and establish a national Qualification framework system, etc., and strive to form a new era vocational education evaluation system that reflects Chinese characteristics.

**Keywords:** Core Orientation; Practical Difficulties, Innovative Strategies, Vocational Education Evaluation

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## 1. INTRODUCTION

The "Overall Plan for Deepening Educational Evaluation Reform in the New Era" issued by the State Council in 2020 clearly stated that "it is necessary to improve the evaluation mechanism that is compatible with the development of vocational education." For vocational colleges, they focus on the employment rate of students, for employers, they focus on students' comprehensive professional ability. For students, they focus on their own career development and the realization of self-worth. Therefore, the construction of a vocational education evaluation system from the perspective of multiple subjects is the development trend of the current evaluation reform in the field of vocational education. Vocational education is an important part of my country's education system and has made great contributions to my country's modernization drive. After the founding of New China, the development of vocational education has experienced a development process from small to large, from low to high, from less to more participation, from weak to strong, and from small to significant contribution, and has accumulated rich development experience. It provides precious enlightenment for the construction of a modern vocational education system with Chinese characteristics and world-class standards in the new era.

After more than 70 years of development, my country's vocational education has achieved world-renowned achievements. Vocational education has provided strong talent support for my country's economic and social development. The incompatibility of the development of the industrial structure and the incompatibility with the multi-level and diversified educational needs of the people has become an important reason for the low social recognition, low attractiveness, and low support of vocational education for vocational education. The national "14th Five-Year Plan" clearly states that "enhance the adaptability of vocational and technical education". Although these reforms or improvement methods cannot be said to be ineffective at all, they cannot

fundamentally solve the problem, because these methods have not grasped the vocational education. The core and essential issues of education. We believe that the fundamental and real problem of improving the attractiveness of vocational education is the problem of interests. French philosopher Helvetia said: "Interest is our only driving force."

Marx pointed out: "Once 'thoughts' leave 'interests', they will definitely make themselves look ugly." From the perspective of students' self-cognition, vocational school students don't care much about their future social status and social class. There is no social elite, and there is no extravagant hope of "living poetically". Vocational skills are undoubtedly one of the most valued aspects in current vocational education, but vocational skills are not equal to professional abilities. What students learn in school is a knowledge point and a single skill. In actual work scenarios, multiple knowledge points and skills are often required to be applied at the same time. Can students apply the knowledge and skills they have learned in their professional activities? To be able to successfully complete specific professional tasks, this truly reflects their professional ability. With the continuous expansion of the scope of my country's vocational education system, vocational school education dominated by the school-age population has gradually transformed into a lifelong education system that combines academic education and vocational training. The national qualification framework system for formal education (mainly referring to vocational training) and non-formal education (mainly referring to self-study, online learning, etc.) recognizes various levels of academic diplomas and vocational qualifications obtained by individuals through different channels and promotes personal career development.

## 2. THE PROPOSED METHODOLOGY

### 2.1 The Practical Dilemma of Deepening the Reform of Vocational Education Evaluation

Vocational education evaluation in my country has always played the role of instrumental management means, providing various symbolic and referential value judgments and factual judgments for educational activities and educational objects, and directing educational activities to make positive improvements according to preset educational goals and positive development. However, there are still some problems that cannot be ignored in the evaluation of vocational education. For example, there is a "five-only" tendency in evaluation orientation. In recent years, to send more students to higher vocational schools, some secondary vocational schools have gone to the misunderstanding of "only going to school" and "only scoring". Another example is that the subject of evaluation is relatively single and tends to be "administrative".

Misplaced reforms and repeated reforms are problems with people's cognition of things, that is, they do not recognize the true cause and essence of things, and they just start to do it with superficial cognition or even perception, and they make moves. to change. This is a simple way to solve a profound problem. This is like a problem with the roots of the tree, but you are struggling with the wilting treetops and yellow leaves. This is a blind reform led by superficial cognition, or "heal the head when the head hurts, and the foot when the foot hurts." type of reform. This is like prescribing prescriptions and performing surgeries indiscriminately before we have found the cause of the disease and pinpointed the focus of the disease. Students' development is accompanied by an increase in the degree of active participation and self-directed learning. From the perspective of development, students who do not study seriously during school may develop into irresponsible work attitudes in the future; cheating on exams may develop into fraud and dishonesty; to future professional ethics.

Students will encounter setbacks in their studies, and they will also encounter setbacks in their work. Only by cultivating a good learning attitude can they develop a good professional attitude. Students develop good learning ability during school, and they will form good professional ability after working. Combining the characteristics of vocational education evaluation systems in developed countries such as Germany, the United States, and the United Kingdom, it has certain enlightenment and reference significance for the research on the evaluation mechanism of vocational education in my country, the construction of evaluation standards and the reform of evaluation methods. From the content characteristics of vocational education quality indicators in Germany and the United States, both countries attach great importance to the construction of the national qualification framework system and the recognition of students' skills and qualifications by enterprises (industries). In particular, the orientation of the quality evaluation of vocational education in the two countries is student-centered and attaches great importance to students' career planning, employability, and sustainable development. This evaluation orientation is worthy of our country's reference and reflection. The teaching team is the first resource for the development of vocational education and the key force supporting the reform of national vocational education in the new era. Building a high-quality "double-qualified" teacher team is the basic work for accelerating the modernization of vocational education.

### 2.2 The core orientation and innovative strategy of deepening the reform of vocational education evaluation.

The "implementation plan for deepening the reform of "double-qualified" teacher team construction in vocational education in the new era" puts forward specific requirements for deepening the reform of "dual-qualified" teacher assessment and evaluation. Vocational education reform must find its own appropriate path. According to Professor Xie Weihe's point of view, reforms in the past were driven by development, but now they are driven by reforms. The former focuses on development and is boosted by reform, which is a breakthrough in extension and forced by development. The latter is a reform that opens the way for reform and optimizes development. In other words, the current vocational education reform is a reform that has entered the "deep water area". The reform of the "deep water area" is the emergence and manifestation of the deep-seated contradictions and problems in vocational education.

Big data is a collection of data that far surpasses traditional databases in terms of information loading, storage, and processing, and is capable of processing. It has the characteristics of large scale, diverse types, and fast computing. In the smart campus, thousands of computers can be mobilized through the cloud computer platform to process a large amount of unstructured or semi-structured data. In this way, the full sample, the whole process and all-round data of students can be obtained without sampling, thus ensuring the integrity of the data.

The key to transforming the education administration method is from the top-down management education method of the omnipotent government to a new education administration method in which multiple subjects participate in education governance. Academic evaluation is aimed at judging and grading the level of learners' academic achievement (learning performance), and those at a certain level must meet the quality requirements of relevant standards. Therefore, it is necessary to establish an academic evaluation standard system, improve the evaluation methods of vocational skill examinations and professional ability, and explore the establishment of an academic evaluation system that combines process assessment and result assessment. Professor Zhong Binglin, president of the Chinese Society of Education, once wrote an article emphasizing: "Currently, my country's education reform has entered the 'deep water zone', the internal and external environment of educational development has become more complex, the complexity of educational decision-making has increased, and the difficulty of implementing reform measures and innovation exploration has increased."

Every student has his own characteristics, hobbies, and specialties. The traditional talent training mode tends to be modular training and assembly line work. The school evaluates all students uniformly based on the mastery of important knowledge points and the proficiency of individual skills. Although the students cultivated meet the teaching requirements, there are some excellent students among them, but more students lack individuality and cannot see their own advantages and disadvantages. Strengths, loss of confidence in learning due to the gap with outstanding students. Since the Ministry of Education and the Ministry of Finance implemented the high-level vocational schools and professional construction plans with Chinese characteristics, a total of 56 vocational colleges have been selected into the list

of high-level vocational schools, becoming the leader in the high-quality development of vocational education in the new era.

Deepening the reform of vocational education evaluation and establishing a scientific vocational education evaluation system cannot be accomplished overnight. It is necessary to select qualified pilot colleges for practical exploration, and then gradually promote it after obtaining successful experience. The plan is put forward in the implementation of reform tasks: "The country and provinces (autonomous regions, municipalities) select qualified places, schools and units to carry out pilot projects, and play a role in demonstration."

### 3. CONCLUSION

The rapid development of information technology has brought new opportunities for vocational education evaluation and made it possible to reconstruct the vocational education evaluation system. The vocational education evaluation system in the new era integrates the whole process of student learning and all elements of personal development, leading to fundamental changes in the operating mechanism of students, teachers and schools, and building a bridge between the vision of students' employment and the employment needs of enterprises, can follow the law of the growth of technical and skilled talents, take the growth of students as the guide, and promote the comprehensive and individual development of students. At the same time, improve the evaluation and incentive system for technical and skilled talents, create a good environment where everyone can become a talent, and everyone can show their talents to the fullest, and strive to let everyone can shine in life.

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# Java Implementation of Intelligent Platform of Computer Distance Education Based on Real-time Information Interaction Algorithm

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**Abstract:** An interactive two-level fusion algorithm based on evidence theory is proposed. The data from different information sources obtained by the data fusion system are classified in detail, and the different roles of non-real-time information and semi-real-time information in the early and middle stages of data fusion are clarified. This paper designs and implements a value-added platform based on Java language, using SSM framework, AngularJS framework and Shrio security framework. Analyze the teaching organization form, teaching evaluation method, teaching management mode and other elements of the blended teaching model, emphasize the learner-centered constructivist education concept, rely on the smart online teaching platform to collect teaching process data, and provide the basis for teaching assessment and teaching improvement. While reducing the use cost of the resource sharing platform, it can eliminate resource heterogeneity and provide services on demand, providing a reference for further optimizing the distance education resource sharing system.

**Keywords:** Java Implementation, Computer Distance Education, Real-time Information Interaction Algorithm

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## 1. INTRODUCTION

The identification of air targets and their accompanying decoys in the state of point targets is a difficult and necessary problem to be solved in combat systems [1]. At present, with the application of stealth technology, electromagnetic interference, decoy and other means, it becomes more and more difficult to distinguish between target and target, target and decoy [2].

In terms of lending, the third-party payment company eliminates the cumbersome procedures for customers, so the huge user base also pushes the development of the third-party payment company to a new height, and the third-party payment company will also develop its own agents [3]. The workload of the multi-model algorithm is one of the superior methods in the current maneuvering target tracking algorithm. The main idea is to design a series of models to represent all possible behaviors of the system. Based on the parallel work of the filters of each model, the overall estimation of the system is a data fusion of the estimates made by the filters of each model. With the development of science and technology, human-computer interaction has a wide range of application prospects in all walks of life [4].

With the development of human-computer interaction, intelligence has become the main development direction of human-computer interaction systems. Compared with traditional human-computer interaction methods [5], such as keyboard input and mouse input, the new human-computer interaction method can bring greater convenience to users. If there are new requirements, it is necessary to re-research and design [6]. The number of systems continues to increase, and the management of these platforms becomes more and more complicated, which affects the management quality of the entire smart campus. Therefore, it is necessary to design a management platform that integrates multiple functions [7].

On February 5, 2020, in response to the adverse impact of the novel coronavirus-infected pneumonia epidemic on the normal school opening and classroom teaching of colleges

and universities, colleges and universities across the country rely on various online teaching platforms to carry out online teaching activities [8]. In the first stage, the audio of educational programs is disseminated through radio communication, and the learning resources are directly disseminated to the target audience at the highest level [9]. The communication method is single, and the learning effect is not significantly improved due to the inability to carry out effective interaction; in the second stage, education is carried out through TV and video programs. Communication; programming is the core skill of computer majors and has strong engineering practice [10].

This paper analyzes the characteristics of engineering distance education teaching, starts from three dimensions of intelligent identity authentication, teaching resource reconstruction and evaluation system construction, explores the construction and application of intelligent programming experimental training platform, and innovates distance education teaching service mode [11]. Therefore, improving the recognition rate of the target plays a pivotal role in improving the combat effectiveness and survivability of modern fighters, as well as the final decision on the battlefield situation and threat level [12].

On the basis of multi-sensor target recognition, this paper discusses the interactive target recognition algorithm based on evidence theory. This paper designs a value-added platform based on Java [13]. As an agent and channel management system, the value-added platform can better manage the third-party payment companies, upper-level channels and lower-level agents, agents and agents, and channels and agents. relation. In the field of maneuvering target tracking, suboptimal multi-model algorithms based on Markov linear systems have received extensive attention, such as interactive multi-model (IMM) algorithms, generalized pseudo-Bayesian (GPB) algorithms, and so on [14].

However, the model transition probability in these multi-model algorithms is completely determined by human a priori,

and does not use the information measured at the current moment, such as image input, voice input [15]. Simply put, image input is an input method based on digital image processing technology. The image and video are processed through camera acquisition and computer processing to shield noise, extract useful information, and then complete corresponding operation instructions [16].

The establishment of the smart campus management platform can integrate and manage a variety of campus service systems, and allow school staff and students to download a software to operate all functions of the smart campus, improve the user experience of the smart campus, and integrate admin users only need to remember a password and account to log in [17].

## 2. THE PROPOSED METHODOLOGY

### 2.1 The Real-time Information Interaction Algorithm

For the discriminative fusion of targets, it can be carried out in three ways: sensor level (data level), target state and characteristic level (feature level), and identity discrimination level (decision level). Among them, the sensor-level fusion system retains as much on-site data as possible and provides subtle information that other fusion systems cannot provide. The functions of this system are divided into system management, log management, channel management, agent management, rule management, and transaction user management. Agent URL management, reconciliation management, report management, notification management ten modules. . Since the current mode information of the system is implicit in the current measurement, the current measurement information should be fully utilized to derive the parameters (model transition probability) of the multi-model filtering online.

Here, an online estimation formula of model transition probability based on posterior probability is given, and a parameter adaptive interactive multiple model (PAIMM) algorithm is proposed combined with the IMM algorithm. The block diagram of the human-computer interaction algorithm based on hand motion proposed in this paper is shown in Figure 1. In the initial video acquisition module, the video is collected through the camera, and the collected video stream is subjected to front-end processing such as Gaussian filtering and morphological filtering to filter out noise, so as to extract and detect the operator's hand movements.

Feature-level fusion belongs to the intermediate level, extracting feature information, and then classifying, synthesizing and analyzing multi-sensor data according to the feature information. Mainly include target status data fusion and target feature fusion, which realizes considerable information compression, notification information (ID number, title, notification type, level, content, attachment file path, is the designated agent, status flag, valid flag, creation time, deactivation time, publisher); the standard deviation of measurement noise is  $r=100m$ , and the maneuver frequency of all models in the current statistical model is taken as 0.06.

100 times of MomeCarlo simulations were carried out, and the tracking performance results of the two algorithms were obtained. In the hand motion analysis module, the position of the hand motion in the image was identified by centroid extraction and motion feature point location, and the motion trajectory and direction, so as to translate the real intention of the operator, and control the remote control car in the human-computer interaction module. The fusion process of this system adopts a hybrid two-level fusion: the first step, each

recognition unit performs time domain fusion on the obtained target data. On this basis, according to the speed, size, state, height, shape, etc. of the target, the target recognition knowledge base that comes with the system is used to make preliminary probability judgment on different targets.

### 2.2 The Smart Campus Security System

The establishment of the smart campus management platform can integrate and manage a variety of campus service systems, and allow school staff and students to download a software to operate all functions of the smart campus, improve the user experience of the smart campus, and integrate Management users only need to remember a password and account number to log in. Submit learning tasks in various forms such as video, online answering questions, and complete classroom assessments. During the epidemic, teachers produced a large number of online teaching resources while completing their own teaching tasks, which greatly broadened the coverage of online teaching courses than in the past.

The sharing platform needs to meet various needs including resource services and user communication, and needs to contain abundant storage resources and complete functions, which can effectively solve the problems of duplication of online teaching resources and difficulty in finding them, so as to make teaching resources better For sharing, the platform needs to meet the following requirements. Highlight practicality and focus on skill improvement. Engineering distance education is different from conventional distance education. The practical environment is of great significance for cooperating with theoretical learning and improving professional quality and professional skills. All learners are for the core goal of enhancing job competitiveness.

### 2.3 The Java Implementation of Intelligent Platform of Computer Distance Education

The automatic assignment function is to assign URL addresses to agents who have assigned channels and have not assigned card type links according to the link mode entered when adding channels. The link modes include: single link mode, multi-link mode, card type link mode 1, card type link mode Mode 2 and Interface Mode. That is, the switching between modes does not require time, and the inertia of the filter system makes the tracking algorithm have a certain delay in identifying the actual system motion mode switching, which reduces the output accuracy of the algorithm during the delay period.

In actual operation, the background will be more or less disturbed due to the different environment of the operator. In order to extract a clear image from a complex background, it is necessary to consider whether the background is affected by light factors during acquisition. factors such as whether the person moves. Therefore, in order to extract a relatively stable and clear image, this algorithm uses the 26th frame image as the background image after the video starts to be collected.

There are many types of current smart campus management systems, and each system will generate a large amount of data information when it is running. These data information are stored in their own databases. There is no confidence exchange between databases and databases, and this storage method will It leads to the waste of construction funds. The talent training model [3] refers to a purposeful, systematic and open system composed of several elements, which is designed under the guidance of a certain training system and a certain educational concept in order to achieve a specific talent training goal. Sexuality and intermediary. Analyze the current

teaching resource sharing status, the technologies and standards used, find out the teaching resource information that meets the requirements of the standard, and convert the teaching resource information that does not meet the requirements.

### 3. CONCLUSIONS

This paper deduces the online estimation formula of real-time information interaction, and combines the above results with IMM to obtain a parameter-adaptive IMM (PAIMM) algorithm. By creating a campus WeChat enterprise account and a variety of management methods of a unified management platform, school staff and students can build a smart campus through mobile terminals, and can also promote the school to non-school users. Distance education needs to be based on rich the ever-increasing types and numbers of educational resources and the diverse learning needs of users have put forward higher requirements for the co-construction and sharing of distance education resources. The level of sharing of teaching resources in the existing distance education system still needs to be Further improve.

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# Optimization of Real-Time Data Flow of Computer Distance Education in Higher Vocational Colleges Based on 6G-Like Communication System Architecture

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**Abstract:**First of all, this paper summarizes the key technical directions of satellite-ground deep integration, new spectrum communication, distributed cooperative MIMO and intelligent communication that may be involved in the future 6G, and focuses on the space-ground integrated network (SGIN) based on satellite-ground deep integration; Then, aiming at the two typical network topology architectures that may exist. This paper is devoted to the research on the architecture and development of the video teaching system based on streaming media technology in modern distance education, providing learners with a "learner-centered" networked learning environment. Based on the educational technology theory of streaming media technology and system development, the whole system development process from system requirements analysis to system design, to the production and release of streaming media data, and the production and release of web pages is described in detail.

**Keywords:** Real-Time Data Flow, Computer Distance Education, Higher Vocational Colleges, 6G-Like Communication System Architecture

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## 1. INTRODUCTION

6G, the sixth generation mobile communication system, is a new generation of mobile communication technology following the 5G mobile communication system. Compared with 5G, the network transmission rate of 6G mobile communication technology is increased by nearly 100 times [1], and the network delay will be reduced from milliseconds to microseconds. The overall vision for 6G of "thinking about the world, everything follows your heart", which is composed of "holographic connection" and "ubiquitous connection", focuses on analyzing the challenges and potential candidate technologies for realizing this vision, in order to provide directional guidance for the development of 6G technology [2].

On the one hand, the wireless mobile network covers a wide range and is the largest land coverage network. Compared with the radar and other sensing networks, the range is wider. The combination of the wireless communication network and the radar system can greatly expand the sensing range [3]. With the rapid development of technology and its wide application in various fields of society, human beings have entered the information age. Since then, great changes have taken place in people's life, work, study and other aspects, and the penetration of information technology in the field of education has become more and more to be profound, distance education is triggering a profound revolution in the field of education with the help of information technology [4].

Some systems implemented by pure software, such as the LanStar multimedia network teaching system of Nanjing Yuanzhi Information Co., Ltd [5]. are very convenient to use and have comprehensive functions, but the real-time effect is too poor in low-bit networks, which seriously affects the learning effect. The Internet is widely used. Research on distance education has focused on two areas: real-time videoconferencing-based distance education and non-real-time Web-based distance education [6]. The research of real-time distance teaching mainly uses video conferencing system

to transmit video and audio to build a distributed classroom, in which teachers and students are only physically different, which is called synchronous or teacher-oriented learning mode [7].

In modern distance education, voice is an indispensable part. Audio transmission is one of the important components of modern distance education. In this paper, a brief introduction is given [8]. Based on the application development of streaming media (continuous time-based media), the Internet is used as the transmission platform for distance education, and the acquisition and transmission of real-time voice in distance education is realized on this platform. Network distance teaching can be divided into two teaching modes: synchronous and asynchronous [9].

The asynchronous learning mode is to use Web browsing technology, and the teaching side first puts the multimedia courseware on the server [10]. Student users only need to download it to the local computer and then broadcast it when they need to watch it. This learning mode lacks interactivity. The support of information technology, the establishment of the Internet platform, the comprehensive use of multimedia and the formation of a learning society are all important factors [11]. The rise of modern distance education has created favorable conditions. The digital learning environment created by modern information technology is changing people's educational thoughts and concepts, providing a broad space for educational reform and development [12].

Comprehensiveness of the software analysis process. A comprehensive analysis of the system's requirements on the operating environment and network conditions has a great impact on the robustness and life cycle of the system [13]. In the real-time transmission of digital video, according to the characteristics of remote teaching images, the multimedia data stream is compressed by software encoding/decoding to maximize the encoding efficiency of the encoder, improve the transmission reliability, reduce the transmission delay, and

also the network protocol is improved to make it suitable for real-time multimedia transmission [14].

Li synchronous teaching mode is to let every student feel it. Face-to-face "teaching" means that you can collaborate with other students to learn, discuss problems, and communicate with the teacher in real time [15]. This mode requires that the teacher's teaching scene, teaching text, pictures, sounds, animations and other contents be transmitted to the stand-alone computer through the network in real time. The Federal Communications Commission has passed a resolution to open the "THz spectrum technology" [16]. The research and application of this technology is to lay the foundation for the research and development of 6G mobile communication systems. The relevant information disclosed by the above-mentioned government and business circles indicates the construction plan for the 6G mobile communication system. The layout has already started [17].

Reference [18] focuses on the re-expansion of 6G application scope and the re-improvement of technical performance, and summarizes satellite-ground integration and coverage expansion, millimeter wave and terahertz communication, data-driven artificial intelligence and endogenous security, distributed cooperative MIMO, etc. The possible technical fields involved, and some key technologies that need to be broken through to realize the wide-area Internet of Things are prospected [19].

## 2. THE PROPOSED METHODOLOGY

### 2.1 The 6G-Like Communication System Architecture

The 6G mobile communication system is designed to realize the vision of "ubiquitous coverage of global communication". It is integrated by near-Earth space platforms, space satellites and terrestrial mobile wireless networks, and fully introduces terahertz. The space-based access network is composed of multiple Middle Earth Orbit (MEO) and Low Earth Orbit (LEO) satellites form an independent constellation network, and each constellation network independently manages and provides services to users. It is inevitable that the integration of wireless communication and perception will become an important candidate technology for 6G, which can be described from the frequency convergence, the surge of resources required to improve service requirements, and the realization of technology consistency.

The International Organization for Standardization has launched 6G network research, and one of the three goals of 6G proposed by the International Telecommunication Union (ITU) is the fusion of satellite communications including many types of networks (ManyNets) [4], which fully shows that satellite communications will be the mainstay of 6G networks. An important part of. With new communication features such as full coverage, seamless, and high frequency spectrum, it can be widely used in holographic communication, long-range Internet of Things, unmanned aerial technology, virtual reality communication transmission, augmented reality communication transmission and other fields, and fill the current situation. These fields are limited by the insufficiency of the development of mobile communication technology. The 6G system integrates with the terrestrial network through the satellite network, learns from each other's strengths and complements the weaknesses, and can together form an integrated airspace, land, and ocean integrated communication network with seamless global coverage to meet the ubiquitous business needs of users.

The fusion or integration of communication and perception is a brand-new network form, so there will be major changes in the architecture. The changes in the architecture can be divided into changes in the system architecture and wireless (air interface) architecture. Compared with 5G, the network energy efficiency is improved by 100 times, and the spectrum efficiency is also improved by 5 to 10 times. The achievement of these business and performance indicators depends on the enabling of AI, cloud computing, distributed computing, and blockchain, and AI is an essential technology for enabling the entire Xingdi network. Compared with conventional laser communication, terahertz communication has higher confidentiality and lower requirements for the stability of the carrying platform. The above advantages of terahertz communication are very consistent with the performance requirements of the 6G mobile communication system in terms of transmission rate, bandwidth, confidentiality, and delay, and become the main technology that the 6G mobile communication system research and development relies on.

### 2.2 The Computer Distance Education in Higher Vocational Colleges

This system can provide learners with a flexible query method to achieve rapid retrieval and accurate positioning of video information for users. In the existing distance education teaching video system, the video retrieval method is often to retrieve the video name and query the specific video from the video database. Since this system is a distributed data exchange and processing system, the school and students are connected through a wide area network. The system must establish a set of abnormal recovery mechanism to ensure the stability and reliability of the system and the consistency of transactions.

There are three types of channel coding and cipher coding. The main goal of source coding is to compress the average number of bits per source symbol or the code rate of the source. The main goal of channel coding is to improve the reliability of information transmission, and the main method is to increase the code rate or frequency band (that is, channel capacity), which is just the opposite of source coding. The real-time transmission control protocol, in cooperation with the 3#4 protocol, is used for I+B monitoring and congestion control, providing a reliable mechanism for sequential transmission of packets and synchronization between media. Viewers can listen to and watch multimedia files while downloading, without waiting for the entire file to be downloaded before playing, and it does not occupy the client's hard disk space. The whole process of crane implementation involves a number of technologies such as Zhi streaming media data collection, compression, storage, transmission and network communication.

After the user selects the video, the system will extract the address of the descriptive text of the video from the database. When the user watches the video, the descriptive text (such as a PowerPoint presentation) will be presented synchronously. The content of the description is supplemented to gain a deeper understanding of the content of the video. The distance education system faces a steady stream of new courses and various new requirements. How to realize the expansion or upgrade of new functions on the basis of the existing operating framework is also a problem that must be considered. Distortion-free source coding can be achieved for discrete sources, and the information output of continuous sources is infinite, so it is impossible to achieve distortion-free source coding. Distortion-free coding of discrete sources is essentially a statistical matching coding. According to the

different probability distribution of the source, the matching code is selected.

### 2.3 The Optimization of Real-Time Data Flow in Computer Distance Education

In the 6G era, user business types and business granularity are more demanding than 5G networks, and they also need to support on-demand deterministic services. On the other hand, 6G networks need to provide network element function programmability and network orchestration capabilities to achieve rapid service upgrades and network agile management. The synaesthesia fusion system architecture needs to add new network elements and complete the network management after fusion Function. Figure 1 presents the system architecture of the proposed synaesthesia fusion network.

In this architecture, the obvious change is the addition of a perception server. The distance education system can be divided into application service layer, core management layer and core service layer according to the network level. The application service layer is the interaction layer and function realization layer between the distance education system and the user. Users can provide a variety of application function modules, such as synchronous courses, file storage, file retrieval, distributed sharing and instant communication. The transmission of data flow only needs to transmit valid data; the odd-numbered ports carry out the transmission of 3#54 control flow, which helps to monitor network traffic and congestion, and provides reliable guarantee for effective data transmission. Combined with 3#54, the transmission efficiency is optimized with effective feedback and minimum overhead. Streaming media does not require network bandwidth.

Rather, it is much smaller than the original. When the network bandwidth is too low for the media bandwidth or the mole jams can cause stuttering and incoherence in the picture and sound. Objects and their associations in the context of the system platform are called basic elements. The analysis of the system working model is mainly to determine the objects and object attributes and the association between objects, to clarify the events and the association between events, to give the object model and functional model in the system, so as to grasp the key characteristics of the system. According to the powerful function of OP\$, this paper realizes the transmission of real-time audio in the distance education system in the Internet. A distance education system should usually include the following main subsystems: teacher teaching system, student self-learning system, question answering system, homework and examination system and teaching management system.

### 3. CONCLUSIONS

This paper analyzes the inevitability of synaesthesia fusion, gives the system architecture and air interface architecture of synaesthesia fusion, and finally gives technical research suggestions in terms of frequency, space and computing power. Key technologies such as optical phased array multi-user access, high-efficiency satellite-to-ground laser communication, and optoelectronic integrated networking, which are in urgent need of breakthroughs in the future 6G, are analyzed and prospected. For other key technologies that may be involved in the development of 6G, it has played an important role in the progress of the subject research, and the main energy can be devoted to the research on the selection of the compression scheme, and the existing network transmission and multicast transmission technologies are

applied. Practice, and at the same time improve in practice according to the characteristics of the application.

### 4. ACKNOWLEDGEMENT

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# Research on the Integration of Computer Application Technology in the Field of Education

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**Abstract:** Computer science and technology, as one of the fastest-growing science and technology in modern times, directly affects and changes people's production, life, and learning methods. In modern education, to improve students' knowledge level and cultivate students' professional skills, computer science and technology are widely used, because it is not only conducive to the sharing of educational resources and the improvement of education level, but also provides convenience for students to learn knowledge. The rational use of this technology in modern education can not only ensure the quality of teaching and improve the level of teaching, but also attract students' attention and improve students' interest in learning. This article focuses on the analysis of the application of computer science and technology in current education, and systematically expounds its significance, and provides relevant measures for improving computer technology teaching.

**Keywords:** Computer Application Technology, Education

## 1. INTRODUCTION

The application of computer science and technology in the modern educational process has great advantages in terms of saving time. First, the application of science and technology can accurately process and apply educational information, which has strong usability in the teaching process, and can also save more important information, which is convenient for later learning and use, and makes up for the time gap in the traditional teaching process. For example, when learning mathematics knowledge, more classic example questions can be saved to facilitate students' future review.

Secondly, using computer technology, the traditional teaching mode can also be broken, and students have the conditions to participate in learning before or after class, thereby improving the quality of teaching. The use of educational technology has brought about a qualitative change in knowledge. The image has changed from books, books, pens, and paper to keyboards, mice, voice input, etc. The society is developing, and education and teaching methods are also constantly developing. The use of educational technology turns static knowledge into active material. Stimulate students' enthusiasm for learning, stimulate students' senses, simulate situations, arouse emotional activities, increase students' enthusiasm, and improve students' learning interest through actions such as pictures, words, sounds, and flips during teaching.

Computer science and technology can reduce the constraints of learning resources and other conditions on students, allow students to learn more knowledge, make the teaching process of teachers livelier and more interesting, help students accept new knowledge, and make communication between students and teachers more convenient. It is more direct and can solve the problems that students have in their studies in a timely manner, enhance the interaction between teachers and students, and strengthen communication and exchanges. The application of multimedia technology in the classroom teaching has enabled the computer to successfully replace the traditional teaching tool the blackboard, which can save teachers from the tedious work of writing on the blackboard, thereby improving the efficiency of classroom teaching. At the same time, the application of computer science and

technology can help teachers create attractive and diverse teaching courseware, and can set open questions, thereby guiding students to carry out autonomous and exploratory learning activities, thereby providing students with Create a highly participatory and attractive learning environment to maintain the student's dominant position in the learning process.

Modern education methods pay more attention to students' hands-on practical ability, and the combination of practice and theoretical knowledge cultivates more applied talents for the society, but teachers are better at instilling theoretical knowledge into students. Apply computer science and technology in modern classrooms to expand and extend the original knowledge and enhance students' understanding of it. Art courses such as art and music show some famous works of art to students, and they can intuitively understand the relevant content under the influence of art. For subjects with cumbersome knowledge points, the blackboard is replaced by network technology, and the original boring content is turned into vivid courseware for students to watch, which reduces the pressure on teachers and saves classroom time and stimulates students' enthusiasm for learning. Smartphones are also in the learning phase for them. Therefore, this type of teachers prefers traditional teaching methods, and basically do not use educational technology for teaching in class, especially in some review classes.

## 2. THE PROPOSED METHODOLOGY

### 2.1 The connection between computer application technology and education

This type of teacher acquires more knowledge from teaching experience, so they are more concerned with imparting knowledge than with cultivating students' abilities. The biggest problem in compulsory education is the promotion of higher education. Teachers often take students' advancement as the most important goal. They talk about their grades, so they care more about their children's grades. No matter how loud the slogan is, it often has a great impact in practice. The use of computer science and technology in modern education can get rid of the shackles of traditional teaching models, allowing students to develop their own pre-class preview by

giving full play to their subjective initiative. At the same time, with the guidance of teachers and the help of computer technology, students can more easily understand the important and difficult points of learning and ask questions to teachers in class or after class, so that teachers can better answer students' doubts. In this way, by giving full play to the role of computer science and technology in the student preview stage, it is easier for students to accept new knowledge.

The application of computer science and technology frees modern education from the constraints of teaching time and teaching space, so it can provide open and equal learning opportunities for all kinds of students. At the same time, open teaching and distance education are gradually rising. The modern distance and open education model allow students to carry out independent learning activities without the constraints of time, space, age, and school scale. For example, teachers upload the prepared online courses to the education website so that students can carry out relevant courses according to their own learning needs. While studying the courses, students can also communicate online with experts or teachers on doubts. The main task of students studying after class is to preview and review. Through the auxiliary technology of computer science, students can skillfully avoid blindness in the process of independent learning after class.

Teachers prepare unified preview courseware for students, so that students have clear ideas and goals, learn relevant content in a targeted manner, understand and consolidate relevant knowledge points in advance, understand content that they do not understand in advance, communicate with teachers in time, and improve preview improve the efficiency of work, and do a good job in the next step with a purpose. Then make up for the deficiencies in traditional teaching, activate the classroom atmosphere, and improve the quality and efficiency of classroom teaching. It has become a teaching based on teacher lectures. Students are unwilling to think, and there are very few signs that can be seen. The enthusiasm of students who have just been introduced into the classroom is good, but the retention time is relatively short. In the end, the completion of the students' homework was not very good. The students themselves had less creativity, and many of them imitated the signs in the book, so the final teaching objectives were not very satisfactory. It can get rid of the limitation of space on education, provide people with a variety of learning opportunities, and at the same time help students learn independently. For example, a teacher transmits the content to be learned to the corresponding website by making online courseware, so that students can find the answers they need according to different problems that arise in their own learning. This way, on the one hand, it improves students' interest in knowledge. On the other hand, it can also help students communicate with relevant teachers on the Internet to improve their learning literacy. Teachers can also answer questions online and guide students remotely, enabling closer communication between teachers and students and helping students learn a wider range of knowledge.

## 2.2 Application of computer science and technology in the field of education

Multimedia classroom is composed of computer, data storage equipment, multimedia audio input equipment and control software. It is based on traditional classroom teaching and adopts the combination of computer science and traditional media technology to meet the teaching requirements of modern education. For example, multimedia classroom in the teaching process, teachers can not only optimize the teaching process, but also implement special guidance according to the

individual characteristics of students, to improve the efficiency of teaching evaluation and the effectiveness of modern education. Limiting children's thinking to these definitions does not pay attention to children's understanding. Many children memorize by rote without considering how the definitions come from. In middle school education, teachers are more focused on cultivating students' test-taking ability. Especially in middle school teaching, mechanical learning often makes students less curious and less able to experience the joy of learning.

Under this vicious circle, many students seem to become a kind of learning machine and lose the fun of learning. In modern education, the use of multimedia classrooms can increase students' interest in learning, make students thirstier for knowledge, give full play to the advantages of computer science and technology, and combine modern science and technology with traditional media technology to meet students' learning needs. For example: in the multimedia classroom, students can carry out their favorite courses and solve the problems that arise in the study by themselves. Teachers can guide their learning activities according to the different characteristics of different students and teach students in accordance with their aptitude. This is not only conducive to schools to better carry out teaching evaluation work, to integrate computer science and technology into multimedia classrooms, but also to promote the development of education. "Education based on the Internet is not limited by space and region. It can be extended to every corner of society through computer networks, and even the whole world. This is an open school in the true sense."

In a sense, courses are no longer static and outdated, but become fresh and continuously developed and updated. The learner becomes the master, who can choose the content of the classroom, and the course is no longer a tangible textbook, but an intangible, free, and optional open learning. The network has huge resources, which can be shared in the world. Because of the particularity of the art discipline, the Internet enriches the classroom and expands the horizons of students. In this era of technology, everyone is inseparable from smart products. Everyone has a smart phone, and society is improving every day. From Nokia, which did not have a camera function more than ten years ago, to the current smart phone, the technology in the past 10 years with the rapid development, children aged 3 or 4 today are beginning to use smart phones and smart TVs. Facing ten years of teaching methods, they can no longer attract students' attention and satisfy their thirst for knowledge. The Internet is a big class, but the teacher is still applying the old teaching mode as in the past, and the students are tired of it.

## 3. CONCLUSION

All in all, there have been obvious changes in the way of education in our country. The development and innovation of information technology has made education and teaching methods very different from the past. This series of changes has obvious advantages, improving students' learning efficiency and enabling students to acquire more new knowledge through this technology, broaden your horizons. The application of computer science and technology provides a new platform for modern education, and it is difficult to exert the actual benefits of teaching. Therefore, schools should apply computer science and technology to students' preview work to improve classroom teaching, so that computer science and technology can be used in distance education. Play an active role in computer science and technology, let students learn according to their own learning

interests in multimedia classrooms, improve students' learning literacy, and make computer science and technology make greater contributions to the development of modern education.

#### 4. ACKNOWLEDGEMENT

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# Data Storage and Research on Distance Education Platform

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**Abstract:** Distance education resources have the characteristics of large amount of data and rapid growth. Low-cost storage and content-based efficient retrieval of these massive data resources are a major problem in the construction of distance education cloud platforms. Based on Hadoop, this paper designs a set of storage and retrieval methods for the massive resources of distance education, which solves this problem. Distribute the load of video and audio streams to the network. For this reason, this paper proceeds from the reality of the application of the distance teaching platform, fully considers the human factors of the user's order and the technical environment of the video service system and conducts in-depth research on key technologies such as data storage, database update, and resource synchronization in the resource service system. And put forward the following improvements and innovations: use of cloud storage technology; automatic update of educational information in the database; automatic download of resource updates; synchronous update technology, which greatly reduces the workload of managers.

**Keywords:** Data Storage, Distance Education Platform

## 1. INTRODUCTION

The advent of the information society has made it more urgent for people to update knowledge, and people are increasingly aware of the necessity of lifelong learning. The rapid development of the information society and the rapid expansion of the Internet have made distance education a trend. The system is a new generation of teaching technology that combines computer network and multimedia technology in different places or at different times. Cloud computing is a computing model for sharing resources. It aggregates computing, storage, network, software, and other resources that are physically scattered across the Internet through virtualization, distributed computing, and other technical means to realize the logical concentration and integration of resources. Use dynamically and flexibly and provide these resources to Internet users in the form of services. Compared with the traditional model, cloud computing has powerful information storage and processing capabilities, and can provide convenient, flexible, on-demand rental, and cost-effective information services.

Significant improvements have been made to security and management. It is manifested in two aspects of technology and demand processing changes. In addition, authentication and authorization are enhanced in terms of security. It provides enhanced management capabilities, improved XML database management and new command-line tools. The component model is an architecture and API set established for developers to define software components, so that developers can build application systems through dynamic combination of software components. The component model consists of two main components, components, and containers. Components are basic software parts with reusable characteristics. Containers are used to store and arrange components to realize the interaction between components. A container can also be used as a component of another container.

To meet the strategic development of the Open University of China, some people proposed to build a distance education cloud based on cloud computing. By building a high-performance computing environment, it can quickly store, distribute, and push massive digital resources, realize high-

quality distance teaching transmission, and provide users with a personalized, one-stop, integrated learning environment and working environment, support personalized learning and individualized teaching, promote the development of learners' advanced thinking ability and group wisdom, and improve the quality of education. Use GUID and XML configuration files to improve resources Packing and transport functions. Establish a GUID identifier and XML configuration description file for each resource bundle, which can record and track the resource content and version of the resource bundle content in detail.

Improve the rights management function, which can flexibly set different rights for teachers, teaching managers, etc.: filter word management function, shielding words that should not appear on the teaching platform. It provides a multi-layer distributed application model, component reuse, and uniformity the unique security model and flexible transaction control, as well as the support for many middleware technologies, not only reduce the development work to a considerable extent, but also enable developers to launch creative customer solutions to the market faster, and the solutions are independent of platforms. Will not be bound by any one vendor's products and APIs. The emergence of the J2EE system not only facilitates the development of distributed applications, but also has incomparable advantages compared with the traditional Internet application model. Use the server's local disk to store data.

## 2. THE PROPOSED METHODOLOGY

### 2.1 Fast Storage Technology for Data Platform

The data is closely integrated with the application system, and the data capacity is relatively limited (about tens of TB). It can be expanded through DAS (Direct Attached Storage) technology, but the installation and debugging of system software is complicated. It is mostly used for personal computers and servers carrying small businesses. In the system, the provincial school teaching platform web service provides a public access page, and all teaching points provide a unified access page, and the background points to the server; the provincial school resource library server stores non-video



resources in the platform, and the server function of the teaching point can be controlled by the platform management server replaces; the video resource server stores all video resources; the resource management server manages the directories and storage locations of all resources, and records the basic information of each teaching point server; the directory center database stores the data information of each teaching point, which is synchronized with the program server coordinates the work and completes the automatic updating of resources.

The J2EE architecture is a multi-layer distributed system. In this architecture, the teaching resource library and teaching management library are all stored and managed in the form of database. Since teachers, students, teaching resources and teaching management are scattered in different geographical locations, the distance education platform is essentially an integrated platform of distributed database resources. Therefore, if the J2EE multi-layer structure is adopted when constructing the distance education platform, the user interface, business logic and data can be well separated. MapReduce is an easy-to-use software framework. Applications written based on it can run on large clusters and process PB-level data sets in parallel in a reliable and fault-tolerant manner.

A MapReduce job usually divides the input data set into several independent data blocks, and the map tasks process them in a completely parallel manner. The framework will sort the output of the map first, and then input the result to the reduce task. Usually, the input and output of the job will be stored in the file system. The entire framework is responsible for scheduling and monitoring tasks and re-executing failed tasks. Composed of multiple storage devices, different storage devices need to use technologies such as cluster technology, distributed file system, and grid computing to realize the collaborative work between multiple storage devices, so that multiple storage devices can provide external the same service, and provide larger, stronger, and better data access performance.

Without the existence of these technologies, cloud storage cannot be truly realized. The so-called cloud storage can only be an independent system one by one and cannot form a cloud-like structure. The central objects in this business logic module are students and teachers. It mainly describes that after students choose courses, teachers decide which students to choose according to the students who choose courses, and finally teachers give credits to students. The applicable objects of this functional module include students, teachers, and administrators, including 3 basic processes. Other column clusters are used to store various information of remote resources. The meta column cluster is used to store the basic information of the resource. Since the basic information may include resource title, introduction, and author, etc., three columns (meta: title, meta: info, meta: author) are designed to represent these three types of information respectively. The text format content of educational resources is saved to the c-text column cluster. Since it may contain text attachments such as teaching plans, slides, and test questions, 3 columns (c-text: plan, c-text: slide, c-text: test) are designed to express.

## 2.2 Data Sharing and Storage Strategy of Distance Education Platform

Apply the snapshot difference algorithm to compare the generated new snapshot with the last snapshot and output the result to the incremental file. This step is completed by the snapshot difference module, which calls a certain algorithm in

the snapshot difference algorithm library to complete this process, and its input is a snapshot file, and its output is an incremental file. The middle school student curriculum and grade management function module of the teaching platform is developed using ShouIts and Hibernate technology and hibernate is used to operate data objects. Here, a HibernateUtil class is defined to be responsible for initializing Hibernate. It creates a global SessionFactory instance, and provides utility methods for creating Session instances, closing session instances, opening/closing transactions, and recreating SessionFactory instances. And all methods are static methods. In the second step, due to the large number of rows in the ResourceTable table and the large number of keywords in each row, many keywords need to be compared for each retrieval, resulting in a performance bottleneck. It can be processed by MapReduce cluster on HBase. The specific method is as follows: store the keyword column clusters of the ResourceTable in multiple HBaseRegions in a dispersed manner, process multiple HBaseRegions in parallel through the map method (that is, compare the keywords), and finally summarize the keyword comparison results through the reduce method.

The method of configuring HBase to use MapReduce. To prevent the loss of system data in unexpected situations such as power failure, and ensure the efficiency and security of data transmission, this function is introduced. Different from other resumable uploads, this system adopts the upload method based on web Service. Because this method uses XML to transmit data, it is easy to expand and migrate, and because it uses port 80 of the WEB service, it can freely penetrate the firewall without hindrance when transmitting data. Before Ajax, web-based applications had to submit entire pages to validate data or rely on complex JavaScript to check forms. While some checks are simple enough to be written in JavaScript, others are not and cannot be written entirely in JavaScript.

Also, every validation routine written on the client side must be somehow rewritten on the server, since it is possible for the user to disable JavaScript. After completing the above configuration, when querying the keyword column cluster, HBase will use the MapReduce method to perform the query in parallel, thereby improving the efficiency of the query. Considering two factors, the system adopts WS. Security to ensure the data security of Web services. It defines SOAP extensions that allow the passing of security tokens. The framework built with WS-Security can exchange security messages in a heterogeneous Web service environment, so it is very suitable for heterogeneous distributed resource library systems.

## 3. CONCLUSION

Aiming at the large amount of data of distance education resources and the characteristics of rapid growth, this paper designs a set of storage and retrieval methods for massive distance education resources based on Handoop, using the idea of distributed storage and parallel computing. Compared with the traditional shared storage method, this method not only has low cost, but also supports efficient content-based retrieval and improves the recall rate. The database is updated automatically. Adding this function makes the management and operation of the platform more convenient and simpler for grassroots managers. The paper proposes a solution and completes the functional program design.

#### 4. ACKNOWLEDGEMENT

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# Construction Method of Unmanned Surface Vehicles Power Control Platform Based on Environmental Force Feedback

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**Abstract:** With the rapid development of intelligent technology, the technology in the field of unmanned surface vehicles (USV) control is gradually improving, and the manual mode plays a vital role in the navigation safety of USV. In this paper, the fault tolerance of data transmission is improved by adopting three-linear interpolation technology in attitude data feedback, and the speed of unmanned ships is controlled based on PID control technology, and finally the construction method is verified through real ship experiments, which can provide theoretical support for future unmanned ship control systems.

**Keywords:** USV; Force feedback; PID control; Trilinear Interpolation; Control system;

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## 1.Introduction

In recent decades, with the continuous progress of sensor technology and intelligent control technology, USV system technology has become a hot topic<sup>[1]</sup>. Due to the increased desire of human beings for ocean exploration, and in order to reduce casualties and costs in the process of ocean exploration, people are eager to obtain new technologies to replace human beings working in dangerous environments, and also hope that human beings can have the feeling of being in the environment and grasp the state of work timely in the process of replacing human operations. Thus improving the accuracy and stability of operation<sup>[2]</sup>.

The control technology with force feedback is a collection of modern sensor technology, artificial intelligence technology, network technology and modern control technology in one of the technology, the rapid development of this technology, mainly benefit from the development of multi-information fusion technology and countries vying to explore the unknown world needs. The remote control system with force feedback enriches the human perception and behavior ability of traditional operation, and assists humans to complete some tasks with high accuracy requirements in dangerous and extreme environments<sup>[3]</sup>. The system mainly uses the sensors carried by the controlled object to collect the force generated by the interaction between the ship and the environment and other motion-related data information through the data acquisition card, and then the control system analyzes and processes the data, and then feeds back to the operator. According to the feedback data information, the operator can effectively perceive the change of the remote environment and

the movement state of the controlled object. Making the corresponding action adjustment in time can make the operator control the controlled object more accurately, enhance the safety of the operating system and improve the efficiency of the operator. Therefore, it is of great significance to carry out power control for ships working in dangerous environments.

Ships often appear in dangerous places such as maritime rescue, ocean exploration and battlefield reconnaissance, because they work in uncertain locations. With the increasing intelligence of ocean engineering, the price of unmanned ships is also increasing. In addition, each ship needs staff to work on the site in person. In case of unexpected situations on the site, it is likely to lead to the empty of both people and ships<sup>[4]</sup>.

C.R. Wagner et al. focused on the application of force feedback techniques to intraoperative intermittent dissection. He believed that compared with the weak feedback technology, the system performance of the tele-operated robot can be improved by 70% with the force feedback technology. When the tissue around the trauma has serious lesions, the instrument with force feedback technology can overcome the limitations of microsurgery defined by the surgeon, so as to be operated accurately and flexibly<sup>[5]</sup>. Zou et al. studied finite-time output feedback attitude control of rigid spacecraft, which ensures that rigid spacecraft can track the attitude of time-varying reference attitude in finite time, thus improving the application efficiency of spacecraft<sup>[6]</sup>. In the field of motion assistant control of unmanned ships, He G et al. used YOLO algorithm in ship object detection, which played a

crucial role in ship navigation safety<sup>[7]</sup>. Lv C et al. proposed a hybrid coordinated control strategy based on signal energy method for the speed and heading control problem of underactuated USV, and the results show that the algorithm has certain effectiveness and stability<sup>[8]</sup>. Aiming at the loss of communication data in busy waters, Zhao J et al. proposed a ship speed extraction framework based on UAV airborne video. The results show that the average speed measurement accuracy of the framework in complex waters is above 93%, which has excellent performance<sup>[9]</sup>. Acanfora M et al. proposed a numerical model of synchronous and parametric roll resonance intelligent detection of ships for the severe roll motion of ships. In the face of maritime threats, different evading actions will be simulated and compared according to the change of course and speed, and finally the course will be changed<sup>[10]</sup>. Song L et al. proposed an emergency collision avoidance algorithm for USV based on motion ability database for the dynamic obstacle avoidance of USV during the task, and the effectiveness of the algorithm was demonstrated by simulating the emergency avoidance experiment<sup>[11]</sup>.

Based on the shortcomings of the above methods in the field of USV safety assistance, a USV control platform based on environmental force feedback is proposed. The operator can make decisions on the current situation more intuitively through the ship motion attitude feedback of the 6-DOF motion platform, which can reduce the damage probability of the unmanned ship, thereby reducing property losses.

## 2.Method

### 2.1 Ship Force Feedback Input

Force feedback technology is a new technology closely related to information interaction technology proposed with the demand of remote control. As an extension of visual, auditory and other perception technologies, it can break the limitations of visual, auditory and other perception technologies, and has great flexibility and ultra-high work efficiency<sup>[12]</sup>.

Force feedback technology is to use modern sensing technology to transform the movement of objects in the environment into the mechanical movement of physical equipment around the operator. Through specific sensing equipment and mechanical transmission devices, combined with computer technology, the force generated by the movement of unmanned ships is obtained, and the force is fed back to the operator through a specific actuator, so that the operator can feel the existence of environmental forces. It increases the operator's immersion in the process of controlling the ship, and improves the operation efficiency and accuracy [7]. The basic composition of the force feedback system and the control structure of the unmanned vessel is shown in Figure 1.

The whole system is divided into two parts: the first part is the force feedback input loop. When the human body receives the feedback information from the sensor device, the environmental information is transmitted to the brain through the relevant sensory nerves, and the brain makes decisions and sends out motor commands to activate the corresponding muscles, causing the operator's arm and finger to move [8]. The other part is the ship control output loop, when the operator operates the controller, the controller will pass the control signal to the actuator, so as to realize the remote control of the unmanned ship.

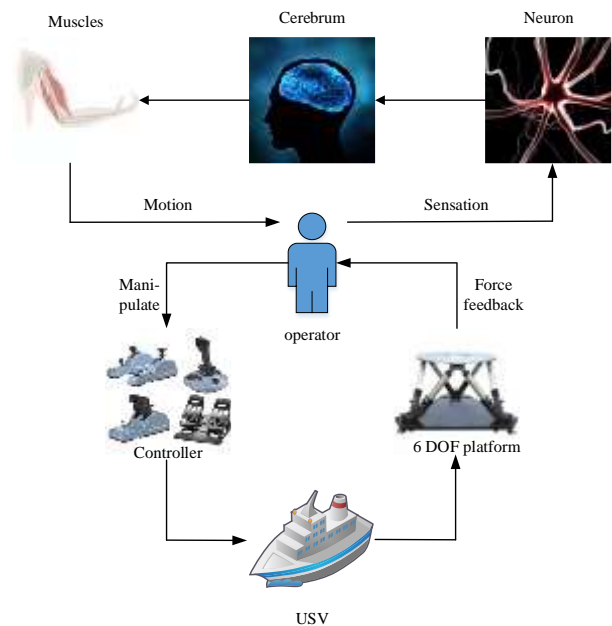


Figure 1. The basic components of the manipulation structure

In this paper, the following rectangular coordinate system is used to study the motion of the unmanned vessel. Figure 2, Where, the following coordinate system-OXYZ is used to describe the motion state and force conditions of the unmanned vessel. For the convenience of analysis, point o is set at the center of gravity G of the unmanned vessel, and the X-axis points to the bow, the Y-axis points to the starboard, and the Z-axis points to the bottom of the vessel.

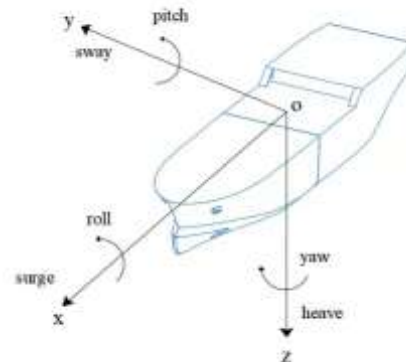


Figure 2. The following rectangular coordinate system

The motion of unmanned vessel in three-dimensional space can be divided into two parts. One part is the translation with oxyz plane, which is swaying, swaying and heaping respectively. The second part is the rotation around the oxyz axis, which are roll, pitch, and yaw. The mathematics of 6-DOF motion of the unmanned vessel is represented by the above two parts of motion physical quantities.

In the force analysis of the following coordinate system oxyz, X, Y, and Z are used to represent the component forces along the three coordinate axes, and U, V, and W are used to represent the component moments around the three coordinate axes. The following formula (1) can be used to represent the 6-DOF motion of the unmanned vessel in three-dimensional space:

$$\begin{aligned} \alpha &= [x_0, y_0, z_0, \theta, \omega, \varphi]^T \\ \beta &= [u_0, v_0, w_0, p, q, r]^T \\ \gamma &= [X, Y, Z, U, V, W]^T \end{aligned}$$

(1)

Here,  $\alpha$  represents the spatial position and attitude Angle of the USV,  $\beta$  represents the linear and angular velocity of the USV, and  $\gamma$  represents the component force and torque of the USV.

Since the 6-DOF moving platform needs to reflect the current state of the ship, it only needs to consider the state of roll, pitch and yaw when considering the movement of the moving platform, which can help the operator fully perceive the current environment of the ship and its own state.

On the impact of environmental forces on unmanned ship, even if an accurate motion model is designed, the complex model will increase the difficulty of controller design, and the relatively simple motion model will have a large error on the current motion of the ship. Therefore, an idea is proposed, the current state of the unmanned ship every 0.1 seconds is analyzed in real time and sent to the 6-DOF motion platform. Therefore, the current motion state of the unmanned ship can be accurately reflected, but if the data is fed back once every 0.1 seconds, the motion will be incoherent. In this paper, the idea of trilinear interpolation is used to make the average value of the current data and the last data, fill the missing value between the 0.1 seconds, and then the sequence is sent to the 6-DOF motion platform to complete the motion data feedback of the unmanned ship. For example, the data interpolation of  $a_9$  and  $a_4$  is  $a$ , and the trilinear interpolation principle is shown in Figure 3 As shown.

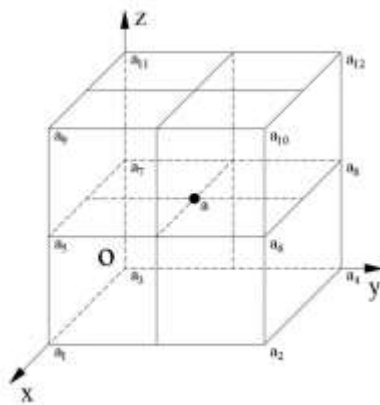


Figure 3. The trilinear interpolation principle

In the process of remote data transmission, due to the large amount of information transmission data, coupled with the interference of the external environment, there is a lot of noise and redundancy in the information transmission, which will reduce the accuracy of data information, so it is necessary to have a certain fault tolerance capability of remote communication, which is also the key mechanism to ensure the availability of remote communication data. It is also the basis for improving the data processing efficiency of unmanned ship control system.

## 2.2 ship manually control output

Manual control output means that it sails according to the course and speed set by the operator in advance. However, in order to make the unmanned ship achieve the expected course and speed in the operation process, it is necessary to adjust the speed of the motor and the Angle of the servo of the unmanned ship, and return the ship motion information detected by the sensor to the host computer for timely adjustment.

In order to improve the manual control performance of the unmanned vessel, the PID control algorithm which is widely used in the design of the controller is used. Because of its flexible structure change, especially PID control does not require the control object to need accurate mathematical model, which is difficult to get or not accurate mathematical model for most of the control object, no doubt more suitable for PID control.

PID regulator is composed of proportional regulator (P) integral regulator (I) and differential regulator (D). It uses the calculated control quantity to control the controlled object after the proportional, integral and differential operation of the deviation value. shows the block diagram of PID control system in Figure 4.

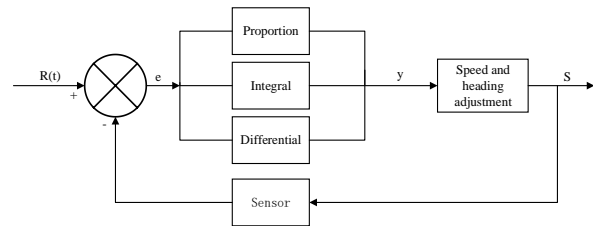


Figure 4. PID control system process

When PID algorithm was used to control the speed and direction of the unmanned vessel, the difference  $\Delta V$  between the set speed  $V_a$  and the actual speed  $V_b$  was used as the input of the controller, and the motor speed  $y_0$  was used as the output of the controller. Similarly, in the servo control, the deviation Angle  $\Delta\theta$  between the set rudder Angle  $\theta_a$  and the actual rudder Angle  $\theta_b$  is used as the input of the controller, and the rudder Angle  $y_1$  is used as the output of the controller. The regulation law can be expressed in formula (2).

$$y(t) = K_p \left[ e(t) + \frac{1}{T_i} \int_0^t e(t) dt + T_d \frac{de(t)}{dt} \right] \quad (2)$$

Or appears as a transfer function(3):

$$G(s) = K_p \left( 1 + \frac{1}{T_i s} + T_d s \right) \quad (3)$$

Where:  $K_p$  is the scaling coefficient,  $T_i$  is the integration coefficient,  $T_d$  is the differential constant, and  $t$  represents the current time. Through the real ship test, the values of  $K_p$ ,  $T_i$  and  $T_d$  are constantly adjusted to achieve the best sailing effect of the unmanned ship. After calculating the motor speed  $y_0$  and rudder Angle  $y_1$  through the above formula, they are input into the control system of the unmanned ship to obtain the adjusted speed  $V_{b0}$  and heading  $\theta_{b0}$ . Then the speed  $V_{b0}$  and heading  $\theta_{b0}$  are feed back to the control system to realize the closed-loop control.

### 3. Experiment

#### 3.1 Pool experiment

Before the actual ship test, the current stability of the unmanned ship was tested through the artificial pool in Figure 5. The size parameters of the small unmanned ship tested this time are shown in Table 1.

Table 1. Unmanned ship size parameters

Parameter names	Parameter information
Dimensions of hull (cm)	150(l)*50(w)*30(h)
Dead weight of hull (kg)	23
Load capacity (kg)	14
Type of ship	Catamaran ship
Mode of propulsion	Double propeller

The accuracy of forward, backward, left turn and right turn of the power control were tested in the test pool. The speed heading mode was used for forward and backward tests at a speed of 1 Kn, as shown in Figure 5, as well as left turn and right turn tests, as shown in Figure 6.

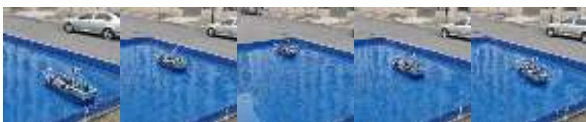


Figure 5. Forward and backward test



Figure 6. Left and right turn trials

#### 3.2 Artificial Lake experiment

After the test in the test pool is correct, it enters the artificial lake of the school for testing. The test scene is shown in Figure 7, where the left picture shows the indoor scene and the right picture shows the outdoor scene.



Figure 7. Test scenario

The test was carried out at the set speed of 1m/s, 2m/s and 3m/s per minute, respectively. In the test, the current speed data of the unmanned ship was obtained in real time, and the data was imported into Origin 2022 in a cycle of 3 seconds, as shown in Figure 8.

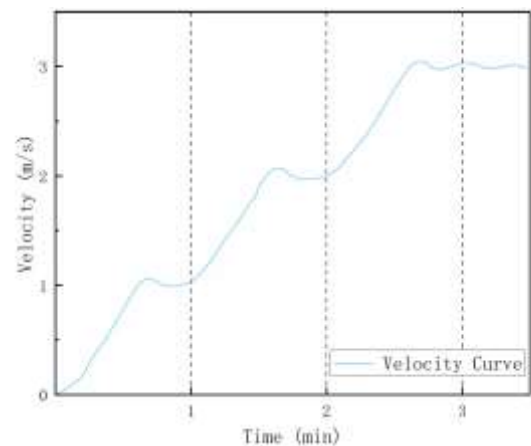


Figure 8. Curve of USV speed change

It can be seen from Figure 8 that when the speed of the unmanned vessel starts from 0, it can reach the set speed with a good speed change rate. Due to certain communication data interference and environmental interference such as wind pressure difference from the water during the test, there is a certain deviation between the actual speed of the unmanned vessel and the set speed. However, in the overall test results, it can achieve the effect of near the set speed and meet the test expectations.

#### 4. Conclusion

This paper discusses the development status of environmental force feedback and unmanned ship control, and designs a construction method of power control platform for unmanned ship based on environmental force feedback. It involves two aspects. PID control technology is used to control the speed of the unmanned vessel. The reliability and stability of the control platform and the feasibility of the construction method in this paper are tested by the actual ship test. Therefore, in the future, we will study the disturbance of the external environment and constantly optimize the construction method of the control platform.

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# Cultivation of College Students' Legal Awareness Based on Ideological and Political Education

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**Abstract:** College students are an important part of our country's social groups, and they are also the pillar of our country's social development. The legal awareness of college students affects the civilization and style of contemporary college students, and even affects the future development of the country. The education and penetration of legal awareness has been carried out in my country's colleges and universities for many years and has achieved certain progress and gains. The development of ideological and political education in colleges and universities, and the cultivation of legal awareness of college students in the process of ideological and political teaching, is also an important part of my country's education. The performance of the career development towards modernization and keeping pace with the times. Based on this, we explore the connotation of legal awareness, the importance of cultivating legal awareness of college students, and the specific ways to cultivate legal awareness of college students in ideological and political teaching, hoping to be helpful to relevant educators and academic personnel.

**Keywords:** Legal Awareness, Cultivation, Ideological and Political Education

## 1. INTRODUCTION

In recent years, with the improvement of people's material living standards, junior high schools, high schools, and universities are no longer rare schools. The rapid increase in population has led to unrestrained enrollment expansion in various colleges and universities to compete for students. The result is a general decline in the quality of enrollment. Especially in the level of group quality and legal awareness. Furthermore, many students have never received orthodox, detailed, standard, and complete ideological, political, and legal education. The taboos thing for students is to discard their due moral character and low ideological quality. It is to cultivate students' solid legal understanding and encourage them to adapt to the fierce social competition. If students continue to follow the current non-ideal way, then the overall style of our society will be seriously affected.

Legal awareness belongs to the category of social awareness and is one of the more special forms of expression. It refers to the generation of multi-dimensional awareness phenomena such as perception and interpretation of current laws and phenomena, psychological evaluation, and experience in a special historical environment. It includes people's views on the nature and function, current legal attitudes, applicable legal assessments, understanding of their own legal rights and obligations, and a comprehensive description of legal views and overviews. The law also defines the relationship between people and people, people and society, and people and the state. In short, this relationship is the relationship between rights and obligations, and it is also the core of legal consciousness.

The law is relatively comprehensive, not only stipulating the rights that people have, but also stipulating the obligations that people need to perform. The cultivation of college students' legal awareness cannot be separated from the joint efforts of society, schools, families, and students themselves. However, in the current college education, many schools generally lack the management and constraints on the behavior habits, personal cultivation, and ideological and

political awareness of college students. They only pay attention to their studies and relax the cultivation of students' moral cultivation and legal literacy, which has caused a serious lag in legal education.

For example, some college students use their school time to conduct webcasting and other activities, or publish some unregulated remarks on the Internet platform, campus violence incidents occur frequently, the school lacks effective supervision of students, and even turns a blind eye to such incidents. It not only caused the students' academic performance to fall back. Law study requires accurate, profound, and practical content, so the corresponding ideological and political education content must be contemporary and realistic, and it must be close to reality, life and education. The principle of the object focuses on carrying out education in combination with the practical problems encountered by the educational objects in study, work, life, etc., answers their concerns and concerns, and helps them solve the problems that need to be solved urgently.

Legal issues are unavoidable for everyone, and they exist in all aspects of college students' life. Therefore, the cultivation of legal awareness in ideological and political teaching should also involve all aspects of college students' life, to enrich the content of ideological and political education. Paying attention to cultivating students' legal awareness in the process of ideological and political teaching is the need to promote the all-round development of college students in the new era. College students are the successors, builders and main successors of my country's socialist modernization cause, and shoulder important historical missions in the development process.

## 2. THE PROPOSED METHODOLOGY

### 2.1 Main Problems Existing in the Cultivation of College Students' Legal Awareness

They represent the future and hope of the country, so it can be said that university education has a huge impact on social



development, and we should also attach great importance to the ideological and political teaching work in universities, especially to strengthen the legal awareness of college students, and to train college students to be able four newcomers who take on the important task of socialism. In view of the current disadvantages of "form is greater than content" and "theory is greater than practice" in the cultivation of legal awareness of college students, in order to realize the effective docking of legal awareness training and university ideological and political education, it is necessary to base on the current ideological and political teaching system continuously optimizes and improves the content, form and teaching structure of ideological and political education, and builds a complete ideological and political education platform.

On the one hand, university teachers should strengthen their clear understanding of the cultivation of law students' legal awareness. Schools can organize training, seminars, etc. to conduct in-depth analysis and interpretation of the legal awareness training and improvement work of college students and improve ideological and political teachers' awareness of college students. The degree of emphasis on the cultivation of legal awareness. Only by determining accurate goals can we propose educational content, measures, and methods to achieve the goals, and choose appropriate educational opportunities and carry out educational activities according to the requirements of the goals. Nowadays, the proportion of university education lies mostly in moral education, and the rule of law education is weak. Therefore, ideological, and political educators must make it clear that legal education and moral education are equally important. Of course, the goal of teaching is not to teach students to memorize by rote, or to become a professional legal elite, but to popularize legal knowledge to college students.

Popularizing legal knowledge is the basis for improving the legal literacy of college students. Paying attention to cultivating students' legal awareness in the process of ideological and political teaching is the need to promote the all-round development of college students in the new era. Due to the rapid development of current network technology, high school students can participate in the media communication process anonymously. At the same time, in many cases, the communication between people also uses symbolic methods, and there are very few opportunities for face-to-face conversations. College students will no longer chat as intimately as before. Everyone wears headphones and looks at the computer, and even thinks that chatting with netizens is better than chatting with classmates, parents, and teachers. If things go on like this, college students will easily form bad habits, the possibility of Internet addiction will also greatly increase, and even their temper will become bad. By cultivating college students' legal awareness in ideological and political teaching, it can obviously promote the healthier development of college students' body and mind, so that students can know, understand, and abide by the law, and strive to become qualified citizens in a society ruled by law.

## **2.2 Ways to Cultivate College Students' Legal Awareness in Ideological and Political Teaching**

Take the cultivation of legal awareness as a specific module of ideological and political education for college students, and promote its effective penetration in ideological and political education through the effective connection of legal awareness, legal responsibility, legal thought, legal psychology, legal

regulations and other content with ideological and political teaching content, introduce legal teachers or hire legal instructors and experts from the society to regularly provide guidance and lectures on the development of ideological and political education in universities, so as to effectively improve the effectiveness of legal awareness education in ideological and political education and promote college students. Cultivation and development of legal awareness. Enrich the content of teaching.

Law learning requires precise, profound, and large-capacity content. During the teaching process, teachers should find social hotspots that are suitable for teaching and have profound value cases to comment, explain, discuss, and stimulate and mobilize students' enthusiasm and enthusiasm for legal learning. Combination of various teaching methods. Combining the preventive education method with the theoretical education method, the preventive education method is aimed at the ideological problems and behavioral biases that people may or will have and educates them in advance to prevent the occurrence of ideological problems and behavioral biases, and specifically uses the method of enlightenment and warning. For example, use cases to let college students know what kind of legal punishment they will receive if they do something wrong, or what kind of situation they can take legal means to protect their rights. There are relatively few teaching hours, so teachers are required to adopt various teaching forms to ensure the effectiveness of legal teaching.

In the process of ideological and political teaching in colleges and universities, we should give full play to and mobilize students' subjective status, take the cultivation of students' legal awareness as the main line, and let students develop their intelligence, thinking and abilities in an all-round way. The primary task of ideological and political teachers. To further enrich and integrate teaching resources, ideological and political teaching should make full use of the diversified teaching resources on the Internet, school, society, family and various media, and use these rich teaching resources as a means to cultivate college students' legal awareness in ideological and political teaching. Relying on it, students can enhance their sense of experience. In the creation of legal awareness education atmosphere, the school can make full use of the environment of society, family and campus to deeply refine the goals, requirements and ideological connotation of the cultivation and improvement of legal awareness of college students, with the help of campus websites, columns, blackboard newspapers, school newspapers, television, radio stations and other media spread, paste slogans, hold symposiums, sharing meetings, repeatedly infiltrate and guide students in all aspects of life and learning, subtly restrain the behavior and thoughts of college students, and promote the cultivation of legal awareness and improve the quality of ideological and political education. Effective landing in .

It is undeniable that most of the teachers of the course "ideological and moral cultivation and legal basis" do not have profound legal knowledge. Ideological and political education is a highly knowledgeable, professional, and comprehensive work. To do this job well, ideological, and political educators must have a solid theoretical knowledge base and extensive cultural knowledge. If there is no rich knowledge reserve in the teaching of legal knowledge, it is very likely that college students will have a wrong understanding. Therefore, in the process of ideological and political teaching, the teaching staff must have the mentality

of living and learning. Resolutely put an end to the teaching mode of "learning while teaching".

It is necessary to pay attention to the implementation of the policy of teaching students in accordance with their aptitude and do a good job in layered teaching. According to the individual differences in legal awareness of different students, targeted training should be carried out in the process of ideological and political teaching, and teaching should be carried out around the different personalities of students. At the same time, students should be encouraged to actively learn legal knowledge by themselves, and relative freedom should be given to them in terms of learning content, so that they become subjects in the learning. Students discover their own deficiencies through reflection, and then they can better make up for them.

### 3. CONCLUSION

College students, as a special group in society, are the new force in the cause of legal system construction in our country. However, contemporary college students have problems such as lack of legal knowledge, lack of legal belief, and weak legal practice ability, and their legal awareness level is far from the requirements of building a country ruled by law. To this end, it is imperative to integrate the cultivation of legal awareness into the ideological and political education of college students, and to organically integrate moral education, legal education, and ideological and political education. The relevant contents described can be shared with relevant educators.

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# Research on the Development and Countermeasures of Talent Training in Higher Vocational Colleges under the Background of Innovation and Entrepreneurship

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**Abstract:** Under the background of "double entrepreneurship and innovation", no matter enterprises, public institutions, or schools, there will be changes in relevant management models and development models. Therefore, taking the development of talent training mode in higher vocational colleges as an example, we will briefly discuss the current research on the training mode of innovative and entrepreneurial talents in higher vocational colleges under the background of "double creation". Talking about the status quo research on the development of this model under the background of "mass entrepreneurship and innovation", of course, it is necessary to do field research and related questionnaire surveys. Research, improve students' innovative ability, entrepreneurial awareness, and innovative spirit, and realize the fundamental task of cultivating talents in higher vocational colleges in the new era.

**Keywords:** Countermeasures, Talent Training, Higher Vocational Colleges, Innovation and Entrepreneurship

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## 1. INTRODUCTION

Human beings have entered the Internet era, which promotes the development of human society in the direction of intelligent automation. Therefore, in the cultivation of talents in higher vocational colleges, it is necessary to pay more attention to the cultivation of students' Internet application, innovation ability, entrepreneurial awareness, and innovative spirit. According to the development needs of the new era, it is necessary to formulate comprehensive innovation and entrepreneurship training measures, guide students to actively participate in the "Innovation and entrepreneurship" competition and provide a broader platform for vocational students. Through practice, students' ideas have changed to a certain extent, and they pay more attention to innovation and development. Vocational colleges innovate talent training models according to the needs of students' development, strengthen school-enterprise cooperation, explore new educational paths, improve vocational students' information level and innovation ability, and lay a good foundation for future employment and entrepreneurship.

As the Internet, artificial intelligence, big data, and other technologies have more and more impact on human social life, many industries and fields pay more attention to intelligent manufacturing, to replace low-skilled labor-based repetitive work, so as to realize industrial intelligence. With the development of globalization, many enterprises have transformed into the Internet industry. Therefore, higher vocational colleges should cultivate students' "Innovation and entrepreneurship" entrepreneurial ability in a targeted manner, so that they can participate in the wave of innovation and entrepreneurship, and effectively improve their entrepreneurial practice ability to adapt to the transformation of my country's economic development mode in the "Innovation and entrepreneurship" era. The ever-changing employment environment brought about. Innovation and entrepreneurship education is an important part of the national innovation and entrepreneurship strategy.

In recent years, there has been a wave of innovation and entrepreneurship in the whole society, and many innovation and entrepreneurship competitions have been held. Universities have also set up innovation and entrepreneurship parks and innovation and entrepreneurship incubation centers. However, what kind of talents should be cultivated by innovation and entrepreneurship education and how to cultivate them needs to be further explored. To varying degrees, there is a separation between innovation and entrepreneurship education and professional education. The curriculum system of innovation and entrepreneurship lacks pertinence and scientificity. The importance and urgency of entrepreneurial talent training is not enough. These show that the concept of innovation and entrepreneurship education is still lagging, and it is urgent to raise awareness and change concepts. Under the background of "double entrepreneurship and innovation", the key to the guidance of macro policies lies in the two aspects of "innovation and entrepreneurship".

In response to this problem, some higher vocational colleges have also taken some specific measures in varying degrees. Specific to the point of "innovation". Through investigation and research, it is found that some higher vocational colleges focus on carrying out some innovative practical activities to encourage and cultivate students' innovative consciousness, such as various invention and creation competitions, which serve as a small platform to encourage students' hands-on practical ability to carry out self-creation, invention, and thinking. Through these specific innovative practices, students exercise such an ability and gradually develop innovative thinking and practice. At the same time, through improving the teaching mode, innovating teaching methods, and creating innovative teaching classrooms to carry out personnel training and teaching.

## 2. THE PROPOSED METHODOLOGY

### 2.1 The training mode of innovative and entrepreneurial talents in higher vocational colleges under the background of "entrepreneurship and innovation"

The "Innovation and entrepreneurship" Innovation and Entrepreneurship Competition mainly examines students' ability to innovate and start businesses with the help of emerging technologies such as the Internet. It provides a platform for students' development and shows the characteristics of social talent needs. Therefore, in this context, higher vocational colleges should pay attention to adding the curriculum content of emerging technologies such as the Internet in the talent training mode and optimize the content of professional courses. Of course, the theory and practice setting of the course content should be reasonably matched to avoid too much of one aspect and affect the balanced development of students. The combination of practice and theory teaching guides students to master the specific application of theoretical knowledge in practice, which is convenient for stimulating students' innovative and entrepreneurial thinking. Teachers should clearly take innovation and entrepreneurship as the orientation in classroom teaching, improve students' information technology level, and at the same time make students realize their own interests, the relationship between their majors and the Internet, and the importance of their application in the development of all walks of life in society. Students hypothesize and conjecture, according to their own professional knowledge, integrate it with emerging technologies such as the Internet, open new ideas, and improve students' innovative thinking and entrepreneurial ability.

The first year focuses on theory guiding practice. Courses such as situation and policy, career planning and employment guidance, information retrieval, communication and speech are offered to give students a preliminary understanding of innovation and entrepreneurship. Career planning and employment guidance courses allow students to understand the important role of career planning in life development, master scientific career decision-making thinking, action plan formulation methods and job-seeking skills. Information retrieval communication and speech course aims to cultivate students' "Innovation and entrepreneurship" thinking, so that they can apply common information retrieval methods for effective information search, learn project document editing, project information display and defense, and improve students' collective awareness and teamwork ability. Encourage students to actively participate in the college student entrepreneurship competition organized by the college to realize "promoting learning through competition", improve students' enthusiasm for learning, and enhance their awareness of innovation and entrepreneurship.

The evaluation system of innovation and entrepreneurship education achievements should include multiple dimensions such as school evaluation, teacher evaluation, student evaluation and social evaluation. School evaluation focuses on the evaluation of teachers' teaching achievements. Teacher evaluation is mainly aimed at the evaluation of students' learning outcomes in terms of innovation and entrepreneurship. Student evaluation includes self-evaluation and teacher evaluation. Social evaluation is made by relevant organizations or experts in the society to evaluate the teaching process and results. Of course, whether it is "innovation" or

"entrepreneurship", while obtaining good planning and guidance, there must be deficiencies. Some specific measures have not been implemented properly, and have not been popularized to most students, but only limited to some students. Therefore, this measure is relatively immature and needs to be continuously improved. While starting their own businesses, students still have a certain degree of blindness in investment, lacking a macro and reasonable guidance. Therefore, under the background of "double entrepreneurship and innovation", the development of the training mode of innovative and entrepreneurial talents in higher vocational colleges has a long way to go.

### 2.2 Strategies for Cultivating Innovation and Entrepreneurship Ability of Higher Vocational Students

The achievements made at this stage are only the preliminary results in the initial stage, and it needs continuous practice and creation. The "Innovation and entrepreneurship" competition usually cooperates with enterprises to co-create, and enterprises contribute to obtain good projects and certain talents. In view of this characteristic, higher vocational colleges should strengthen communication and cooperation with enterprises in the process of cultivating innovation and entrepreneurship. Understand the needs of enterprises for positions and introduce a group of professionals from enterprises to provide guidance for students' practice through cooperation, so that students can understand the specific conditions of social development, and at the same time understand the immaturity of their innovative and entrepreneurial ideas. Under the guidance of the staff, the existing project research plan is adjusted, and new ideas are proposed. After continuous practical research and experimental debugging, the students have mastered the specific development direction and improved the project research plan. You can seek the enterprise as an off-campus cooperation practice platform to provide a perfect plan. After obtaining the support of the enterprise, practice, record the process and results of project implementation, and submit the final plan report.

By introducing skilled craftsmen from industrial enterprises to teach or work part-time in the college, we will promote mutual employment between schools and enterprises, and jointly build and share the teaching team. The school and enterprise jointly build an entrepreneurial incubation base, and establish and improve the talent training mode of dual education and school-enterprise cooperation. This major has long hired regional industry "experts" to participate in the school's curriculum development and jointly formulate talent training programs. Based on the curriculum design principle of "based on the curriculum corresponding to the job post work process", we will build an entrepreneurial incubation base with enterprises, analyze, and decompose the real enterprise project content, integrate the knowledge, ability and quality objectives of the course into the teaching tasks, and consolidate Students' professional knowledge and skills, cultivate students' innovative and entrepreneurial ability.

The cultivation of ability is inseparable from practical exercise. To make students truly have the ability of innovation and entrepreneurship, they also need to be given sufficient exercise. Schools should create conditions to provide opportunities for innovation and entrepreneurship, encourage people with entrepreneurial awareness and ideas to exercise on the platform, put innovative ideas into practice, and further improve students' awareness and ability of innovation and

entrepreneurship. For example, expand the intensity and depth of school-enterprise cooperation, establish school-enterprise cooperation innovation and entrepreneurship education practice bases; establish innovation and entrepreneurship education parks; incorporate enterprise certification into student training goals, build innovation and entrepreneurship practice platforms through multiple channels, and provide students with practice places and opportunities. In this context, some graduates of higher vocational colleges can even be a scientific and technological personnel of a related enterprise, or an engineer or technician of a large enterprise.

The changes in the two stages before and after fully illustrate the "creative" change in the training mode of innovative and entrepreneurial talents in higher vocational colleges under the background of "double innovation". This "creative" change plays a very important role in the development of my country's higher vocational colleges and the cultivation of talents. In this context, many students will choose to study in higher vocational colleges for further study. Therefore, Chinese education plays a very important role in rationalization, scientization and balance. Of course, this "creative" change is also a process of continuous improvement, which requires a spirit of seeking truth from facts and advancing with the times, to combine with specific reality and be scientific and reasonable.

### 3. CONCLUSION

Under the background of the "Innovation and entrepreneurship" competition, it has brought new development opportunities and challenges to the talent training of higher vocational colleges and promoted the innovation of teaching system and talent training in higher vocational colleges, so as to meet market demand and facilitate students to better adapt to changing times. In the process of cultivating innovation and entrepreneurship ability, teachers adjusted the teaching plan according to the requirements of the "Innovation and entrepreneurship" competition, optimized the course content, focused on the integration of professional knowledge and information technology in teaching, and improved students' emphasis on information technology. Only by enhancing students' ability to capture entrepreneurial opportunities and combining traditional entrepreneurial methods with the Internet can we explore an innovation and entrepreneurship education model suitable for the "Innovation and entrepreneurship" era.

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# Legal Literacy Education in Ideological and Political Education in Colleges and Universities

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**Abstract:** This paper first analyses the current situation of the development of legalization of ideological and political education, and then analyses the legal literacy education in ideological and political education in colleges and universities in the new era. I hope it can provide useful reference and reference for relevant personnel. First, from the theoretical aspect, it will deepen the theoretical interpretation of the core and spiritual essence of Xi Jinping's rule of law thought. Secondly, from the aspects of fundamental guarantee, subject construction, and goal orientation, it is clarified the value implication of Xi Jinping's thought on the rule of law to cultivate ideological and political education in colleges and universities. The second chapter focuses on the logic of Xi Jinping's rule of law thought to cultivate ideological and political education in colleges and universities. Enrich the rule of law education activities, improve the initiative and enthusiasm of college students, promote college students to better improve their awareness of the rule of law, study practical legal issues in a socialized environment, and achieve the goal of efficiently carrying out rule of law education.

**Keywords:** Legal literacy education, ideological and political education

## 1. INTRODUCTION

Ideological and political education is the main front of the rule of law education. Colleges and universities should start from the actual needs of college students, fully implement the party's ideological policy, focus on the ideological needs of college students, and based on solving the legal confusion of college students, comprehensively improve the effectiveness of rule of law education and solve the problem of the rule of law. Practical issues in education.

Attach great importance to the training of young talents from a strategic height. Therefore, in order to achieve the mission of cultivating the foundation and strengthening the foundation, casting the soul and educating people with Xi Jinping's thoughts on the rule of law, enhancing the rule awareness and the concept of the rule of law of college students in the new era, and providing important talents for the comprehensive rule of law, it is necessary to develop ideological and political education in colleges and universities. In innovation, thoroughly implement Xi Jinping's thought on the rule of law, strengthen theoretical interpretation and practical exploration, improve the practical path of this thought to cultivate ideological and political education in colleges and universities, and focus on cultivating newcomers of the era who are both moral and legal. my country's strategy of ruling the country by law has been implemented for a short period of time, and the system is still not perfect. The lawful management of college students is still not satisfactory, and it is also facing many challenges. For example, the legislation of colleges and universities is less practical and targeted poor wait. At the same time, there are few rules and regulations in the ideological and political education in colleges and universities. For example, the prevention education for students' violation of discipline is not comprehensive enough. Some colleges and universities do not even train students in legal knowledge or instill the concept of rule of law.

Some schools cannot reasonably implement the rules and regulations, and lack of good communication when dealing with students' violations of discipline. For example, when dealing with violations of discipline in exams, they only ask students to confirm the notification of violations after the fact. Burden, and even make students rebellious. Ideological and political education in colleges and universities has the

problem of simply implementing theoretical knowledge. Ideological and political education in colleges and universities has not effectively stimulated the rights awareness of college students, failed to fully demonstrate the rights of college students, and cannot guide college students to exercise their rights correctly. Therefore, in moral and legal education cause certain negative effects. Moreover, there is a lack of legal education in ideological and political education in colleges and universities. Classroom teaching mostly revolves around the explanation of legal provisions, fails to fully analyze typical cases around college students, and fails to effectively stimulate college students' legal thinking. The basic common sense of legal education and college students' life the connection is not close, so legal education is boring.

The ideological and political theory classroom is the main teaching position for colleges and universities to learn new ideas and transfer legal knowledge, but there are some problems such as insufficient two-way interaction between teachers and students, and neglect of practical experience. The practical characteristics of Xi Jinping's thought on the rule of law require that the ideological and political education work in colleges and universities strengthen the learning, penetration, and practical power of Xi Jinping's thought on the rule of law. It is necessary to change the traditional lecture-style teaching and open a new field of "cultivation". Practice shows that the teaching, management, and evaluation of ideological and political education in colleges and universities are an organic and unified system. This process of educating people should highlight the whole process, full coverage of educating people, and the concept of "three completes" in an all-round way. When students think about or deal with problems, they have not formed the thinking to judge, analyze, and deal with problems in accordance with the concept and standards of the rule of law, and they know little about their own legitimate rights and interests.

## 2. THE PROPOSED METHODOLOGY

### 2.1 The Value of Legal Quality Education in Ideological and Political Education

Changes in the market environment drive the transformation of business operations and organizational positions, and inevitably require the ability level of marketing talents to adapt to the new environment and new situations. Most of the

construction of digital campus is to meet the normal teaching environment. However, with the increase of information volume and different application methods, if we want to realize the sharing and smooth flow of information, we need to use information technology to communicate with the normal activities of the school. Combined to achieve a comprehensive digital management method, the use of scientific management methods to integrate information resources, thus forming a unified user management. However, the construction of college information portals requires the integration of content resources, to provide a certain impetus for the application-oriented development of vocational colleges. Management information standards are just like a cornerstone. It is not only the basis for building a digital campus, but also the condition for realizing the exchange and sharing of educational information resources.

Strengthen continuing education, evidence collection and social service functions. The platform runs through all stages of marketing career and can provide online services such as professional knowledge supplement and vocational skills training for marketing practitioners. More importantly, the platform provides employment or job selection service information for students or marketing practitioners, and provides industry company introduction, development prospects, recruitment information and other latest information. Using the basic framework of Spencer's general competency model for marketing personnel, this paper proposes the digital capabilities of marketing professionals in higher vocational colleges under the background of digital transformation of enterprises, and the digital thinking and digital thinking formed in the process of using digital information technology to manage valuable customer relationships. Collection, analysis, and application capabilities.

In this digital capability map, digital thinking, digital acquisition, digital analysis, and digital application capabilities interact with each other, and play different roles and play different roles. Together, they form the digital capability map of marketing professionals in higher vocational colleges. Although vocational schools have established their own digital campus network systems, the utilization rate is low, especially in the past few years of operation. The digital network system is only limited to participating in the digital construction of school management and has not really been used in digital scientific research construction, so more digital construction is only at the basic stage, unable to exert real functions and functions. The network is the most basic facility to realize a digital campus. Without the completion of the network system and organizational structure, there will be no systematic functional departments to realize the management of campus data and server systems, so that certain infrastructure construction cannot be formed. Since the 1980s, the marketing major has been considered as the most versatile sunrise major with the most development potential.

## 2.2 The Path of Rule of Law Education in Ideological and Political Education in Colleges and Universities

For example, in the moral education for students majoring in financial management, the requirements of financial management systems and regulations should be implemented in the basic quality cultivation of financial management personnel, so that students can fully understand the moral orientation and requirements embodied in the legalization of financial management-related behaviors. Have the courage to

use legal weapons to safeguard their legitimate rights and interests. To realize the combination of ideological and political education in colleges and universities and the education of the rule of law, it is necessary to explore ways to apply the Internet, pay attention to the use of the Internet to better meet the needs of students, meet the needs of students in obtaining information resources under the new situation, and fully meet the needs of education in the rule of law in ideological and political literacy .

The Internet has become an important carrier for college students to influence their thoughts and values today. The Internet is an important platform for students to acquire knowledge of the rule of law. Colleges and universities must seize the main position of ideological and political education and publicity in the Internet age, to effectively use the advantages of new media and comprehensively improve the Internet. The quality of rule of law publicity in the environment. The problem of monotonous educational content is mainly highlighted in the design and content of teaching materials. On the one hand, the vertical content system is not smooth and scientific enough, resulting in vertical blockage, overlapping problems and flooding. On the other hand, the horizontal content system does not cooperate closely. Various ideological and political courses and various professional courses have certain similarities in teaching level, which requires teachers to flexibly integrate ideological and political elements into the rule of law classroom horizontally, combine horizontally and vertically, and learn from different angles and dimensions construct a systematic and comprehensive content system that cooperates with each other.

The teaching content of ideological and political theory courses should be closer to the students' daily concerns, analyze and interpret the Marxist rule of law theory more deeply, and avoid falling into the stereotype of only teaching theoretical knowledge and memorizing by rote. As the main body of education, whether it is teachers or counselors, their excellent legal literacy is a prerequisite for carrying out their work. Taking counselors as an example, how to evaluate the best and awards, the organizational development of party members, the identification of poor students, the evaluation of scholarships and grants, etc., are not only the development and completion of a job, but also a process of legal education. Therefore, this requires them to study the relevant legal system in normal times, act in accordance with the law and regulations in the student management work, and have a fair, just, open, and realistic work style.

Secondly, a dual-teacher system can be implemented, that is, a teacher of ideological and political courses and a counselor will teach together. The two can teach from the theoretical level and the practical application level respectively, instill the rule of law in the teaching process, and break through the limitations of the original textbook chapters. Use the network platform to realize the direct dialogue between ideological and political educators in colleges and universities and students, pay attention to the rule of law education in the daily life of students, focus on legal issues on the basis of paying attention to the phenomena around students, emphasize closely following the rule of law incidents, focusing on social hotspots, the concept of the rule of law is conveyed, so as to comprehensively cultivate the spirit of the rule of law of students, achieve the goal of guiding students to better choose network information, and establish students' correct concept of the rule of law.

The concept of comprehensively governing the country by law and Xi Jinping's thoughts on the rule of law will run

through the entire process of ideological and political education in colleges and universities. Govern the country by law in an all-round way throughout the whole process of personnel training. It should be based on how to cultivate the legal awareness of studying, knowing, obeying, and using the law, and strengthen the consciousness and sense of responsibility of college students in defending the law, so as to become firm advocates and supporters of comprehensively governing the country by law. In line with the principle of being based on textbooks but not limited to textbooks, through different topics, different cases, and the shaping of different characters in cases, discuss multimedia teaching and cases, and convert obscure legal systems and legal clauses into easy-to-understand legal systems. language, and even contact and organize relevant social practice activities, so that students can enter the court and the community, increasing their chances of understanding the national judicial system. Teachers should also receive systematic legal knowledge training to improve legal literacy so that students can become real beneficiaries in specific teaching sessions.

### 3. CONCLUSION

Ideological and political education in colleges and universities should form a complete system, innovate the method of rule of law education, and under the effective cooperation system of theoretical courses, campus culture, and student interaction, better create a rule of law education environment, innovate the atmosphere of rule of law education, solve practical problems in the field of rule of law, and achieve the goal of colleges and universities. The goal of carrying out rule of law education. The practice of socialist core values in colleges and universities is an important part of ideological and political education in colleges and universities, and the rule of law is an important part of the social aspect of socialist core values. The education of the rule of law and the cultivation of the spirit of the rule of law are also indispensable parts of higher education. In the new era, colleges and universities should shoulder the important task of cultivating contemporary young students' sense of social responsibility. Therefore, from the perspective of the rule of law, it is extremely necessary to explore the content of ideological and political education in colleges and universities.

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# Research on Strategies for Popularizing and Promoting Mandarin in Shaanxi Province

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**Abstract:** This article takes the rural area of Guanzhong in Shaanxi as an example, focusing on the importance of harmonious development between Mandarin and dialects in the new countryside; Exploring the harmonious development of Mandarin and dialects in the new rural areas is of great significance for building a harmonious language environment in the new rural areas, starting from three aspects: the cognitive level of rural residents in Guanzhong, Shaanxi, and suggestions for promoting the harmonious development of Mandarin and dialects in the new rural areas. Deeply explore the current situation of language poverty alleviation and the important significance of "popularization" in achieving the strategic goals of poverty alleviation and analyze the current lack of language poverty alleviation and its reasons, to provide suggestions and suggestions for Shaanxi Province to achieve the strategic goals of poverty alleviation as soon as possible and help promote the smooth implementation of the national poverty alleviation strategy.

**Keywords:** Popularization and promotion, Mandarin, Shaanxi Province

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## 1. INTRODUCTION

With the deepening of the national Targeted Poverty Alleviation policy, poverty alleviation has become the top priority of the government's work. Language, as an important human capital element, is closely related to factors such as labor ability, career opportunities, development confidence, and economic income. The language usage in the region also has a direct impact on the overall development environment and opportunities in the region. This article focuses on the existing implementation methods of poverty alleviation and intelligence support work in Shaanxi Province through text research and sampling surveys, with the goal of improving human capital elements in impoverished areas. Starting from the "language economy", it empowers the development of poverty alleviation in impoverished areas and explores new paths for poverty alleviation.

To handle the relationship between the two, it is necessary to have a rational view of the status of dialects in the minds of farmers. Dialects represent the customs and culture of a region and are the established language habits of residents. They are not only an external form of expression, but also the condensation of collective emotions. To promote Mandarin, it is necessary to respect the dialect plot of farmers, provide space for dialect use, and allow Mandarin and dialect culture to mutually promote and supplement each other, further achieving a new rural environment. The organic combination of Mandarin and dialects in the context is also an important cornerstone for creating a harmonious language and living environment in socialist new rural areas.

96.6% of the total sample size were able to communicate with people using the Guanzhong dialect (including those who only know the Guanzhong dialect). The number of people who only speak Mandarin accounts for 3.4% of the total sample size; 77.4% of the total sample size were able to communicate with people using mandarin (including those who only speak Mandarin). Since this question is a self-reporting multiple-choice question, there may be multiple choices. According to the data, 74% of respondents reported having the ability to speak two words. From this, the overall language

communication and usage abilities in rural areas of Guanzhong are strong, and the level of mastery of Guanzhong dialect is deeper. Language poverty alleviation refers to improving the language ability of impoverished populations, enhancing, and optimizing their human resource strength, improving their social environment for poverty alleviation, enhancing their poverty alleviation ability through endogenous development mechanisms, and further serving local economic development.

In this concept, language mainly refers to language ability, which includes not only the ability to skillfully use spoken language, but also the ability to read and use written language. In a broad sense, it also includes the ability to use language to learn new knowledge, accept new things, and integrate new relationships. Of course, this does not include school Language education at the compulsory educational stage. In the survey, the purpose of using Mandarin among rural men in Guanzhong is more focused on whether age is helpful in obtaining their ideal job, whether it plays an important role in various exams, and whether it helps to improve their image level in the eyes of the opposite sex.

Women tend to focus on three aspects: whether their Mandarin proficiency matches their internalized qualities, whether they enjoy the recognition and praise they receive when communicating in Mandarin, and whether mastering Mandarin can help them differentiate themselves from other peers and highlight their strengths. Data shows that the purpose of residents learning Mandarin is to better communicate with others, to meet professional, job, and business needs, and to find better jobs and comply with national policies, personal interests, and hobbies. The survey shows that although there are various purposes for residents to learn Mandarin, most of them study it for the purpose of better communication with others, as well as employment.

## 2. THE PROPOSED METHODOLOGY

### 2.1 The Significance of Innovative Educational Concepts to the Teaching and Educational Management of Ideological and Political Courses in Colleges and Universities

Comprehensively promoting the "popularization" of Mandarin among impoverished areas and the masses and adapting the education and use of Mandarin to the poverty alleviation requirements of impoverished areas and the masses, is the foundation and core of language poverty alleviation work. At present, the popularization rate of Mandarin in China is unbalanced, and there are still many young adult farmers and herdsmen in the central and western regions who are unable to use Mandarin for basic communication. In terms of educational level, the proportion of people who learn and use Mandarin to meet exam requirements increases with the increase of educational level, while the proportion of illiterate, primary school, secondary school, and college graduates increases. At the same time, the proportion of people attracted by the functionality of Mandarin itself is also increasing.

This indicates that people with higher educational levels attach greater importance to the test taking and social utility of Mandarin. According to interviews with local students, most teachers in rural schools have medium level Mandarin, older teachers have strong dialect accents, and speaking in tongues is spoken during teaching. Most students use Mandarin and dialects interchangeably on campus. Therefore, in the field of language use, the school, as the forefront of Promotion of Putonghua promotion, should strengthen the standardization of local teachers' teaching in Putonghua, consciously and normatively use Putonghua in education and teaching. At the same time, the school level should pay more attention to the "putonghua publicity week", do a good job of publicity, and try to create a strong Putonghua language environment on campus.

Language poverty alleviation has the characteristics of being fundamental, long-term, and indirect. The closed nature of impoverished people in various aspects such as living environment, social relations, and visual thinking makes them have a natural aversion to Mandarin. Therefore, in order to comprehensively implement the "popularization" work and help alleviate poverty from the perspective of language, it is necessary to first do basic publicity work to make impoverished people aware of the important role of Mandarin and be mentally prepared to accept Mandarin. Secondly, a large number of software and hardware supporting facilities need to be prepared, such as the selection and allocation of teachers, the popularization and distribution of modern language tools such as radio and television. These are not overnight achievements and require long-term unremitting efforts. The language and writing industry are first and foremost a social enterprise that can exist independently, with its own development laws and evaluation system.

The development of the language and writing industry does not stem from the needs of poverty alleviation work, nor is poverty alleviation work the only standard and ultimate measure for measuring the language and writing industry. To avoid mechanically binding the language and writing industry with poverty alleviation work, it is believed that only by meeting the needs of poverty alleviation work can the development of language and writing industry be meaningful. We cannot believe that without the language industry, the

strategic goal of poverty alleviation cannot be achieved. The acquisition and mastery of the national common language is conducive to more employment opportunities and higher labor remuneration for individuals. The Mandarin proficiency of residents can affect their confidence in going out to work.

### 2.2 Optimizing the collaborative mechanism of ideological and political education and ideological and political courses in colleges and universities in the era of big data

The Guanzhong region of Shaanxi is famous for its rich cultural heritage and tourism resources. The low fluency of Mandarin among residents has led to the waste of tourism resources, which has hindered their poverty alleviation and prosperity. Therefore, in the current stage, the promotion of poverty alleviation should take the popularization of Mandarin as an opportunity to provide corresponding training and improvement to the knowledge, cultural level, and survival skills of residents in the region, providing opportunities and guarantees for their personal development.

Promoting the language industry in poverty alleviation work can help impoverished people better learn modern scientific and cultural knowledge, enhance their awareness of poverty alleviation, enhance their confidence in poverty alleviation, thereby enhancing their own human capital elements, enabling them to have good communication with the outside world, improve the social environment for development and income growth, and help them completely overcome poverty and move towards prosperity through endogenous and long-term mechanisms. But this is a long-term and arduous task that cannot be accomplished overnight. There is only over a year left until the 2020 comprehensive poverty alleviation strategy goal, and the time is tight, and the task is heavy. The urgent task is to complete the poverty alleviation work from a material standard as soon as possible. This requires the coordinated use of various poverty alleviation methods, while addressing the long-term and immediate, primary, and secondary, internal, and external factors, to steadily promote the implementation of language poverty alleviation. Language poverty alleviation contributes to permanent poverty alleviation, while permanent poverty alleviation requires cultivating the intrinsic motivation of residents to spontaneously overcome poverty, transforming the intrinsic motivation into production and development capabilities.

By comprehensively improving the comprehensive quality, communication ability, and active learning ability of the impoverished population, we can promote them to break free from poverty thinking and maximize their human capital. However, in the specific practice of developing their language ability, the government and relevant departments should pay attention to that the propaganda and Promotion of Putonghua should not only be a lively activity, but also pay attention to the long-term, sustainability and stability of the improvement of language ability. The popularization of Mandarin should not only be integrated into the basic education of rural schools, but also into the construction of rural culture, both to enrich the spiritual life of residents, we must also adhere to the combination of intellectual and spiritual support in language poverty alleviation, and develop the concept of self-reliance among residents, so that they can truly benefit from poverty alleviation through language and material life. Language poverty alleviation lacks clear institutional norms, and the implementation opinions issued by relevant departments are not mandatory.

Therefore, the Ministry of education, the poverty alleviation office of the state council, the national language commission, and local poverty alleviation authorities should effectively cooperate and jointly establish a work assessment mechanism for language poverty alleviation, to promote language poverty alleviation through administrative means. Summarize the good practices that have universal promotion value, and based on this, formulate assessment standards that can be implemented nationwide, to standardize language poverty alleviation work. Finally, under the requirements of standardization, we will deepen the development of language poverty alleviation work, better serve the overall national poverty alleviation strategy, and make the necessary contributions to eradicate poverty completely and comprehensively.

### 3. CONCLUSION

The Central and State Offices also require village cadres to "actively promote the popularization of Putonghua and help improve the application ability of the national common language". The above measures have laid the foundation for promoting the organic integration and coordinated promotion of the language industry and poverty alleviation strategy. How can relevant departments specifically integrate language education with poverty alleviation work in their future work? How to excavate effective factors that can promote poverty alleviation from the language industry requires continuous exploration in practice and institutional improvement. Drive and guide students in the selection of teaching language and daily language use and strengthen the promotion of Mandarin. The "language poverty alleviation" in rural poverty-stricken areas needs to combine intellectual and spiritual support, and in the implementation of the "popularization and poverty alleviation" work, attention should be paid to its long-term and sustainability.

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# Analysis and Research on the Training of Teachers' Professional Ability of Normal Students in Colleges and Universities

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**Abstract:** The cultivation of teachers' professional ability is a quantitative measure to measure the teaching quality of teacher education. With the development of normal colleges in the direction of integration, many local normal colleges emphasize "professionalism" while ignoring "teacher quality". Based on the analysis of the current situation of normal students' teachers' professional ability training, this article meets the new requirements of basic education, and focuses on the cultivation of normal students' basic teaching ability, teaching professional ability and education management ability. Based on this, corresponding solutions are put forward from four aspects: adjusting the course structure, strengthening the integration of knowledge and skills, focusing on the integrated training of teaching skills, and building a diversified practice space.

**Keywords:** Teachers' Professional Ability, Normal Students

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## 1. INTRODUCTION

Teacher education is the workhorse of education, and teacher training is the fundamental mission of normal colleges. However, in the process of transformation and upgrading in the direction of "comprehensiveness", many local normal colleges' talent training specifications and the basic attributes of "teachership" are gradually drifting away, and the basic function of cultivating high-quality teachers showing a weakening trend. In addition, driven by the "openness" of teacher education, some high-level non-normal colleges and universities have begun to participate in the construction of a teacher education system with Chinese characteristics, making the advantages of professional training of teachers in local normal colleges no longer prominent.

At present, the concept of professional development of teachers has been recognized by many normal colleges and universities, which has triggered scientific reflections on the original curriculum by experts and scholars and has been reconstructed according to the development requirements of teachers' professionalization, adding the teacher education Relevant courses for the cultivation of teaching practice ability, to strengthen the vocational skills training of normal students. But overall, it still emphasizes theory over practice, and lacks a series of courses dedicated to teachers' professional skills training, such as language arts for teachers, classroom teaching in middle schools Skills, new curriculum standard lectures and educational and teaching practice courses. Teachers' oral expression skills are the basic skills of teachers. Suhomlinski once said: "Language is the commander who leads people to the front and the musician who moves people's soul strings.

Language is the warrior for the soul of men. Everything depends on the discourse accomplishment of your teacher. Some words are as thin and ugly as a person suffering from retinism, some words are as powerless and emotionless as the influence of withered grass, and some words are as brilliant as eternal stars, which will never go out and guide the

way for mankind. "Teacher's oral expression refers to the behavior of teachers who skillfully use industry terms that meet the requirements of the norms in the process of education and teaching. Normal colleges and universities offer Mandarin courses, but because they are teaching students of all majors, they focus more on in terms of the accuracy and standardization of pronunciation of normal students, there is less oral expression skills training for rhythm changes in teaching oral language, emotional display, inspiration and guidance, and communication with students and parents, and more oral training for the characteristics of history teaching. is rare.

The teaching language of history teachers has its own subject particularity. What it expresses is historical information. It should not only have the standard terms of the history subject, but also reflect the liberal arts and profoundness of the Chinese language. It must also meet the teaching requirements and be suitable for students to accept. Teacher education requires deep integration and creative transformation of subject expertise and various types of teacher education knowledge, rather than a simple addition of the two. When "teacher training" is no longer the core function of normal colleges, the boundaries between teacher education and non-teacher education will become blurred. Many local colleges and universities have begun to increase subject professional knowledge education, reduce teacher education courses, and neglect the cultivation of teachers' "basic skills", which has weakened students' professional awareness. Even after graduates become teachers, it is difficult to effectively apply the knowledge they have learned to education and teaching. practice.

## 2. THE PROPOSED METHODOLOGY

### 2.1 Main Problems Existing in Cultivating Teachers' Professional Ability of Normal Students

Higher normal colleges must change their concepts, increase curriculum reform, and build a curriculum system that meets the needs of teachers' professional development. First, adjust the ratio between professional courses and teachers' professional skills courses, and strengthen teacher education categories such as subject teaching theory. Systematic instructional design and the construction of modern educational technology courses to improve the knowledge structure in the training of teaching skills for normal students; secondly, reform the training methods and establish a talent training mechanism that integrates teaching methods, teaching techniques and teaching situational knowledge into subject teaching content. Thirdly, strengthen the construction of teachers in teacher education courses. On the one hand, the number of teachers should meet the training needs of normal students' professional skills; on the other hand, it is necessary to build a team of teachers that can meet the needs of teachers' professional development.

Therefore, higher normal colleges should increase the introduction of talents and the training of existing teachers, so that teachers can not only master the content of the course, but also understand the professional background and knowledge structure of the students in the class and understand the particularity of the teaching of this major. To effectively organize and use the cases related to the content of the major for teaching. The vocational skills training of normal students must make a breakthrough and reach a new level. Instead, overall planning and rational organization of students' vocational skills training and education and teaching practice activities should be made.

All normal colleges and universities originally carry out various skills training. At present, it is only necessary to make overall arrangements for various existing education, teaching and training activities and links, and improve the efficiency of vocational skills training for normal students through optimization and coordination. Activities can be played to the maximum, the best function. At the same time, carry out corresponding and necessary system innovations, straighten out and form matching mechanisms, so that the vocational skills training of normal students can get material and spiritual support and system guarantee. Therefore, the curriculum arrangement of vocational skills training for normal students must be arranged in stages and levels. As the main exporter of teachers in the regional basic education stage, local colleges and universities undertake the glorious mission of promoting the development of regional teacher education and are the backbone of promoting the comprehensive reform of teacher education strength.

Basic education teaching is highly systematic and complex, and the instructors of the internship units are busy with daily teaching work, which greatly reduces the effectiveness of cooperative training. Further improve the teaching content and implementation methods of teacher education courses such as basic education reform and new curriculum lectures, lectures on new curriculum standards, analysis of middle school textbooks, research on middle school learning questions, training of middle school classroom teaching skills, analysis of typical cases of middle school courses and trial teaching. First, to set miniaturization, miniaturization, and specialization classes.

### 2.2 Strategies for Improving Professional Skills of Normal Students

However, at present, the main forms of cooperation between most universities and primary and secondary schools at the grassroots level are mostly teacher trainee education apprenticeships and internships. Substantive cooperation in personnel training, subject research, teacher training, and educational resource development needs to be deepened and strengthened. , there is nowhere to talk about implementation". At the same time, even in cooperation, many school-school cooperative relationships are mostly based on unstable, irregular, and low-level connections. It is difficult for this kind of cooperative relationship to form a unified, coordinated, long-term and stable overall action.

For example, the basic education reform and new course lectures are conducted in the form of special lectures, and the teaching method is mainly based on discussion, which fully embodies the teaching concept of taking students as the main body. Secondly, in terms of course content, the practicality and applicability of the course should be strengthened. For example, middle school classroom teaching skills training, micro-teaching, typical case analysis and trial teaching of middle school courses, middle school study problem research and teachers' language arts and other courses highlight the training of students' teaching skills and basic teaching skills, strengthen the course practice link, and make teachers' education courses The setting is in line with the employment needs of students. It is carried out in combination with courses such as middle school education and management, subject teaching theory, and teaching skills training. This stage emphasizes the combination of teachers' lectures and students' practice. The focus is on the "simulation" practice of education and teaching based on students' learning and mastering the basic theories, methods and skills of subject teaching and middle school education and management.

In the first semester, the link simulation is carried out, that is, each link of education and teaching skills is trained one by one, such as teaching skills, combined with teaching, lesson preparation skills training, classroom questioning skills training, introduction skills training, etc. are carried out, and each skill training is passed one by one. Local colleges and universities should focus on the development needs of basic education, attach importance to and continuously deepen docking cooperation, and train excellent teachers for primary and secondary schools at the grassroots level. According to the professional development of teachers and the professional orientation of normal students, we absorb the opinions and suggestions of experts in the field of basic education and graduate representatives, revise the talent training plan, highlight the student center, clarify the "teacher-like" training objectives, and require students to master the "speaking, writing, "Good at teaching" basic teaching skills, with teaching, research, and class management capabilities.

The classroom teaching of each course should combine the teaching content and make full use of modern information technology and network technology to create a variety of classrooms for students that use Tencent or DingTalk for live broadcast, use cloud classes for homework management, and use QQ groups and WeChat groups for tutoring and answering questions Opportunities for teaching practice. It can combine specific teaching content to create practical opportunities for normal students to participate in teaching activities that integrate multiple technologies as learners or instructors. Secondly, improve the training mechanism of micro-teaching skills. According to the actual It is necessary

to increase the training time of micro-teaching skills to ensure that every student can participate in the training. The student union takes the drill very seriously.

Every normal student also needs to pass the evaluation of simulated classroom skills. Excellent students can be recommended to participate in educational skills competitions, classroom teaching simulation competitions, teaching plan writing and courseware production competitions and other activities. "Effect. Simulation drills and competitions can enable normal students to find the feeling of standing on the podium, understand their own shortcomings and advantages more clearly, learn from each other's strengths, and exercise their courage and confidence.

### 3. CONCLUSION

Achieving "zero adaptation" in teaching is an important goal of the professional ability training of normal students, and it is also a basic requirement for local colleges and universities to return to the main position of "teacher education" and serve basic education. As the main force of teacher education, local normal colleges undertake the glorious mission of cultivating qualified teachers for basic education. Facing the new requirements for the development of basic education in the new era, there are different school-running practices, so the methods and methods of teaching reform are different. How to make full use of the existing resources and conditions to realize the effective transformation of the practical teaching mode and cultivate students who are closely related to the actual history teaching in middle schools. Adapting normal students is a subject that normal colleges have been exploring.

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# Research on the Construction of Tourism Microblog Marketing Evaluation System in The Context Of The Big Data Era

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**Abstract:** This article is based on the official tourism Weibo data from 25 provinces in China from 2015 to 2017. Two comprehensive indicators activity and interaction are constructed to evaluate the operational effectiveness of tourism official Weibo in various regions. The two indicators of activity and interaction are introduced into the regression model of tourism income, and analyzed using an individual fixed effects model, this paper puts forward five first level indicators of the tourism official microblog marketing effect, namely, "microblog publishers, fans, blog attraction, Pathogen transmission, and communication benefits", and on this basis, it puts forward 18 second level indicators, so as to build an evaluation indicator system of the tourism official microblog marketing effect.

**Keywords:** tourism microblog, marketing evaluation, big data era

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## 1. INTRODUCTION

As a new media form generated in the era of big data, microblog marketing is a platform based on user relationship information sharing, dissemination and acquisition, and a social media with open characteristics, which is relatively easy to affect interconnected social groups. In marketing activities, Weibo marketing is undoubtedly an effective weapon for low-cost trust building, cultivating consumer loyalty, and establishing brand image. In recent years, the operation of official tourism Weibo accounts has been widely regarded as an important means of local tourism marketing in various regions. According to statistics, there were a total of 2886 Weibo tourism blue V accounts in 2018, with official tourism Weibo accounts accounting for 36% of the total Weibo tourism blue V accounts. Various provincial cultural and tourism departments have operated official Weibo accounts.

However, can the official tourism Weibo truly play a role in promoting the tourism industry? This article uses data from 25 provinces from 2015 to 2017 to empirically study the relationship between the marketing effectiveness of official tourism Weibo and tourism revenue. The marketing effect of tourism official Weibo refers to the impact of information exchange through the media of tourism official Weibo on the travel decisions of information audiences, the formation of tourism destination images, and the emotions of tourism destinations. It is a measure of the effectiveness of information transmission by Weibo communicators and an evaluation of the satisfaction of information needs of information audiences. The marketing effectiveness of tourism official Weibo specifically includes two aspects.

One refers to the degree of intention achieved by information disseminators using Weibo as a medium for information dissemination; The second refers to the effective impact that the information audience obtains through Weibo on their emotions, thoughts, attitudes, and behaviors. The rapid popularization and development of smart tourism have put forward urgent requirements for the service effectiveness evaluation of tourism apps. In recent years, domestic and foreign scholars' research on tourism apps mainly includes:

the design and implementation of tourism apps, the impact of tourism app features on consumer experience, and the impact of tourism app user experience on tourism satisfaction. The number of research literature on "tourism APP evaluation" is relatively small, mainly focusing on the use of some traditional methods to evaluate and analyze the user experience and influencing factors of tourism APP, the use of big data analysis technology and the consideration of the objective characteristics of evaluation indicators.

Thirdly, the editing taboo of Weibo information should be straightforward and straightforward, and the editing and processing of information should have consumer "ingestion strength". Fourthly, the dissemination of Weibo information should emphasize innovation, including the use of innovative methods such as information content editing, information integration, and dissemination combinations. The positioning of Weibo marketing information is like product positioning. The basic direction and ideas of Weibo marketing information dissemination positioning should only be planned and designed around the specific content of Weibo information editing and processing, such as how to express the tone, what kind of content to convey, and whether it conforms to the behavior habits of the target group.

## 2. THE PROPOSED METHODOLOGY

### 2.1 Factors affecting tourism income.

Based on the above literature research, this article selects indicators from two directions: Weibo publishers and Weibo recipients to measure the marketing effectiveness of tourism official Weibo. The former refers to the degree of activity of tourism official Weibo operations that affects marketing effectiveness, while the latter refers to the degree of interaction between tourism official Weibo and users that also has a significant impact. Based on the above literature research, this article selects indicators from two directions: Weibo publishers and Weibo recipients to measure the marketing effectiveness of tourism official Weibo. The former refers to the degree of activity of tourism official Weibo operations that affects marketing effectiveness, while the latter refers to the degree of interaction between tourism official Weibo and users that also has a significant impact.

The activity level of bloggers is generally calculated based on the duration of online travel official Weibo (usually measured in 24 hours), login frequency, and post frequency. The number of microblogs published, the frequency of microblogs, the original rate of microblogs, and the number of microblogs followed Co-determination. The higher the level of activity of Weibo, the greater the probability of followers following it, the larger the corresponding audience of the published information, and the greater the marketing effect. The theory and method of user experience originally originated and applied in human-computer Interaction design, and now it is more widely used in the Internet field.

The research on user experience in foreign countries is early. Since Donald Norman, an American cognitive psychologist and user experience expert, first proposed the concept of user experience in the 1990s, more and more foreign scholars have extended and expanded the concept and content of user experience and proposed a variety of different user experience models. The process of enterprise micro blog marketing is the process of producing micro blog marketing effects, and the key to achieving micro blog marketing effects. The core element of the Weibo marketing process is the process of Weibo relationship management, which involves restructuring existing social relationships in the virtual space of Weibo, transforming their virtual "community relationships" into "marketing relationships". For the selection of control variables, some variables that jointly affect tourism revenue are mainly selected from the perspective of urban infrastructure construction and tourism official WeChat. After referring to previous research and case analysis, the number of star hotels, highway mileage, railway operating mileage and Urban green space area are finally determined as control variables.

The number of stars rated hotels refers to the standardized and unified total number of hotels in a certain province or city, including five levels. The area of Urban green space is the statistical value of the area of green space in a province and city, which affects the overall impression of the city and the level of Natural landscape, and then as an important objective factor affects tourism income. The proportion of original Weibo posts on official tourism Weibo accounts for all Weibo posts. The higher the originality rate of Weibo, the higher the level of activity of the official tourism Weibo. Conversely, the lower the level of activity of the official tourism Weibo. Types of blog genres: the official travel Weibo blog adopts article genres, including narrative, expository, argumentative prose, and stories. Among them, argumentative and story blog genres are the most likely to attract fans' attention.

## 2.2 The effectiveness and influencing factors of tourism official Weibo marketing.

Alternative indicators for emotional experience layer: interface aesthetics, interface friendliness, privacy security, service responsiveness pre-sales and after-sales service response is enthusiastic and timely, resource utilization is low APP traffic usage and memory usage are low. Divide the importance measurement values of alternative indicators into 5 levels: 0 (negligible), 0.2 (not very important), 0.5 (generally important), 0.8 (relatively important), 1.0 (very important).

The evaluation indicators for the construction process of the Weibo platform include whether the visual effect of the Weibo platform can meet the visual needs and even values of the target audience of the enterprise's Weibo platform; Can Weibo platform materials accurately convey Weibo

positioning to users; Can the personality of Weibo platforms reflect specific indicators such as industry differences. Firstly, tourism official WeChat operations should focus on the bidirectional nature of Weibo communication and should not only publish content that they consider important in one direction.

By observing the content posted on official WeChat accounts in some places, it can be found that many content releases are still "communicator oriented", enthusiastic about publishing official activities, marketing activities, and other information, while paying less attention to tourist attractions, services, and other information. We should further enhance the audience's awareness, pay attention to the audience's response to the published content, optimize the published content and themes by observing indicators such as likes, reposts, and comments, and publish more content that can attract the public and public attention. Blogs are the dissemination of recent facts, which determines that disseminators must publish them in a timely manner as soon as the facts occur, otherwise they will wait for things to pass for a long time before promoting them. Such information will be habitually referred to as old news by people. It is from this perspective that blog posts, like news, are also fragile.

The characteristics of Weibo require bloggers to be able to choose to publish their posts anytime and anywhere in a timely manner. For example, the convenience of carrying mobile phones, handheld computers, and other devices makes it more convenient to publish their posts, thereby ensuring the timeliness and accessibility of tourism official Weibo dissemination. The three basic tasks of user profiling are: extracting basic information, mining user preferences, and statistical crowd characteristics. Extracting basic information mainly focuses on extracting structured portrait attributes from unstructured page data. User behavior understanding mainly studies how to mine user preferences and interests by collecting user behavior data; Statistical population characteristics are the study of how to reveal the reasons behind user behavior.

Therefore, the user profile labels of tourism apps directly reflect the user's behavior, preferences, and other characteristics, which can objectively reflect the effectiveness of tourism app usage. Evaluation indicators for the process of Weibo marketing information release: Weibo information content editing should focus on the needs of the audience, whether it achieves the integration between the "willingness to listen" of followers and the "willingness to occur" of the information that the enterprise wants to convey. Secondly, it should actively interact with the audience through public and private means. Timely respond to the public by forwarding, liking, commenting, and other means. For sensitive and unchanging content that cannot be directly made public, responses can be made through private means such as private messages to enhance audience stickiness,

## 3. CONCLUSION

In the evaluation system of tourism official Weibo marketing effectiveness, the evaluation elements and indicators are mutually influencing and causal, jointly influencing the changes in marketing effectiveness. Therefore, when using the Weibo platform for marketing work, the tourism official Weibo needs to pay attention to these indicator elements and develop effective Weibo marketing strategies based on the actual situation of local tourism while playing a positive role. Only by effectively grasping the specific operational skills of Weibo can good marketing results be achieved. This paper



introduces big data user profiling technology into the research of tourism APP evaluation and proposes that building a tourism APP evaluation index system that considers both user profiling and user experience is of great significance for improving the service effect of tourism APP and promoting the further promotion of cultural tourism brand and reputation.

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# Research on Real-Time Dynamic Scheduling Mechanism of Intelligent Manufacturing System Based on Agent

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**Abstract:** Based on intelligent agent technology, a new method for dynamic scheduling of chip manufacturing production lines is proposed, which integrates feeding scheduling, workpiece scheduling, and equipment maintenance scheduling. Firstly, a dynamic scheduling model based on intelligent agents is proposed, which includes management agents, feeding agents, workpiece agents, equipment agents, transportation agents, and personnel agents. The feeding intelligent agent is used to achieve feeding control, and workpiece scheduling is achieved through negotiation between the workpiece intelligent agent and the device intelligent agent. Equipment maintenance scheduling is achieved by the device intelligent agent. The mechanism has been explained in detail in terms of scheduling control algorithms and other aspects. This mechanism can achieve real-time control and dynamic scheduling at the workshop level based on the system operation status. Finally, experiments have shown that this method effectively reduces the impact of equipment failures and other disturbance factors on system operation.

**Keywords:** Real Time, Dynamic Scheduling, Intelligent Manufacturing, Agent

## 1. INTRODUCTION

The chip manufacturing production line belongs to the third type of production system developed after the job shop and flow shop and can be re-integrated into the production system. There are various types of scheduling on chip manufacturing production lines, mainly including feeding control, workpiece scheduling, equipment maintenance scheduling, personnel scheduling, and transportation scheduling. Among them, feeding control, workpiece scheduling, and equipment maintenance scheduling are the focus of research. Quickly and economically establish manufacturing processes based on different product requirements, and dynamically adapt, self-organize, self-learning, liberalize, and maintain the entire manufacturing process.

The research results in the field of distributed artificial intelligence indicate that intelligent manufacturing systems established using agent technology are the most promising development direction. This article first introduces the characteristics of agents and multi-agent systems, and then proposes a method based on dialogue patterns to design communication between agents, which is verified using colored Petri nets. Scheduling strategy in manufacturing system can be divided into static scheduling and dynamic scheduling. Static scheduling refers to generating a scheduling plan for all orders (including assigning designated processing units, processing sequences, and time to enter the production system) before the production system runs. Static scheduling is easy to obtain theoretically optimal or suboptimal scheduling solutions. However, in the actual production process, static scheduling often leads to production stagnation and low production efficiency due to ignoring sudden disturbance factors such as equipment failures and emergency orders.

Unlike static scheduling, dynamic scheduling requires real-time monitoring of various disturbance events that may occur during the operation of the manufacturing system. Once a disturbance event is detected, corresponding processing mechanisms are taken based on the current state of the system to change the scheduling plan, ensuring smooth operation of the system. The dynamic scheduling strategy can effectively

handle disturbance events and has become the main scheduling mechanism in current manufacturing systems. The management agent mainly has two functions: managing all agent individuals in the chip manufacturing production line. Each agent in the system needs to register with the management agent, but it only saves relevant information of all agents and does not interfere with the autonomous decision-making of each agent. By managing agents, other agents can easily understand the information they want to know. For example, artifact agents can obtain information about device agents that can complete their own processes through managing agents, to inspire corresponding negotiation processes in a targeted manner.

A multi-agent system consists of a group of many agents distributed logically or physically, connected through a network, sharing resources, and forming an organized group to complete common tasks. It is generally believed that multi-agent systems are particularly suitable for application problems that can be decomposed and partitioned based on space, time, or function. Adopting multi-agent systems in these applications will bring the following advantages: due to the parallelism of processing, the running speed of the system will be accelerated; Since the processing of information is carried out near the information source, the requirements for communication bandwidth are relatively low. The event triggered rolling window dynamic scheduling mechanism utilizes dynamic events in the manufacturing system to partition scheduling intervals.

## 2. THE PROPOSED METHODOLOGY

### 2.1 A Dynamic Scheduling Control Architecture Model for Manufacturing Systems

This method divides the dynamic events of the manufacturing system into basic events (foreseeable events during system operation such as process processing completion and workpiece transportation completion) and disturbance events unforeseeable events during system operation such as emergency order arrival and equipment failure. Each equipment agent controls one processing equipment in the

chip manufacturing production line. The device agent carries all information about the device, such as type, name, processing capacity, status, geographical location, tools used, queuing for processing workpieces, maintenance methods, and information related to maintenance. The device agent determines whether to undertake the processing task of the workpiece through negotiation with the workpiece agent. In multi-agent systems, coordination and collaboration between agents are key to solving problems. Therefore, agents must exchange information through communication, including goals, intentions, outcomes, and states.

Conversation is the most effective and direct way of exchanging information. Dialogue refers to the behavior of two or more agents conveying a series of messages to achieve a specific purpose. The dynamic scheduling mechanism mentioned above only schedules specific processes of a single production task as the basic unit, and its scheduling process is limited by its own knowledge base. Relying solely on this mechanism cannot guarantee the optimal global scheduling of the system. In addition, scheduling schemes generated by different tasks are likely to generate resource conflicts (such as scheduling schemes for multiple tasks requiring the same processing equipment).

Therefore, in the implementation process of dynamic scheduling mentioned above, corresponding negotiation mechanisms need to be applied to coordinate the agent entities participating in scheduling in the control system. Firstly, the workpiece agent issues a task announcement to the relevant device agent, which mainly includes a description of the pending process of the controlled workpiece, an initial quotation (in this study, the latest start time of the pending process of the controlled workpiece), a deadline for the device agent to respond (i.e., time constraints), and a deadline for reaching an agreement. Within this time constraint, the artifact agent always adheres to its commitments. After receiving the task announcement, the device agent evaluates the task and responds to the workpiece agent with a quotation within the time constraints specified by the workpiece agent. The construction of a dialogue mode starts with the confirmation of all dialogue topics, and then collects and classifies individual communication behaviors to form a pattern. The collection of these patterns can be checked for conflicts and deadlocks using CPN. Through classification, instantiation, inheritance, and aggregation, a set of pattern classes and pattern instances are obtained.

To avoid resource conflicts, the winning AGV agent and device agent sequentially compare the winning task with the prescheduled task in their own task buffer. If the scheduling evaluation values of the new task are better than the tasks cached by both themselves, replace the original cached task with the new task and notify the agent entity of the original cached task publishing unit to reschedule. Otherwise, reject the new task and publish the tasks.

## 2.2 Real time dynamic scheduling mechanism for manufacturing systems

Petri net is an effective tool to describe the Discrete event dynamic system with distributed, concurrent, and asynchronous characteristics. It uses four elements to model the system model: place, transition, arc, and token. It uses the connection of place, transition, and arc to identify the static structure of the system and describes the dynamic behavior of the system through the excitation of transition and the movement of token. In a multi-agent system, various agent entities coordinate and generate scheduling sequences through

a contract network mechanism; When a disturbance event occurs, the multi-agent system immediately initiates a rescheduling to respond to environmental disturbances. In this model, the overall scheduling objective of the system is decomposed into multiple sub objectives and coordinated and calculated by multiple distributed agent entities simultaneously. Therefore, manufacturing systems can generate response rescheduling for disturbance events in a shorter CPU time.

The above considerations are that the devices controlled by the device agent are processed in a single chip or batch manner. When the equipment controlled by the device agent is in a multi batch processing mode, the method for generating a counter quote is the same as the above method when the equipment is idle or in maintenance, and when the equipment is busy but there are no waiting workpieces in front of it. However, when the equipment is in a processing state and there are workpieces waiting to be processed in front, special consideration should be given to prioritizing the processing of workpieces that meet the maximum processing batch of the equipment. This will not be analyzed in detail here. There are many construction methods for composite patterns, such as hierarchical CPN representation and object-oriented analysis and design methods.

Composite patterns can be obtained by integrating some atomic patterns, and there are two main methods of integration: aggregation and connection. The aggregation method can fully utilize the characteristics of colored Petri nets for simulation. For example, aggregating the three atomic modes of REQUEST, REPLY, and ACK into composite modes. For manufacturing control systems in dynamic environments, the basic goal is to achieve smooth and continuous operation of the production system and reduce equipment waiting time. In an ideal situation, the goal of continuous operation of the system can be reflected in two aspects: for the device agent, it is hoped that after the processing task is completed, the workpiece can be immediately transported to AGV to ensure that it can receive processing tasks from other workpieces and achieve continuous processing operations.

The device agent obtains information about device agents with similar functions through management agents. If the devices controlled by similar device agents are not busy, maintenance begins; If the device controlled by a similar device agent is busy, use the management agent to obtain if there are any upcoming workpieces. If not, start maintenance and upkeep. If so, check the processing time and number of machined pieces of the workpiece to determine whether the completion of the workpiece processing will reach the required maintenance value. If so, start maintenance; If not, wait for the workpiece to arrive.

## 3. CONCLUSION

This article proposes an intelligent manufacturing control system model in a dynamic environment, which can achieve distributed control and real-time dynamic scheduling through multi-agent interaction based on contract networks, based on the actual state of the production workshop. The article establishes a dynamic scheduling control architecture model for manufacturing systems and analyzes the characteristics of communication between agents in the system from the perspective of event triggered rolling window dynamic scheduling mechanism and contract network-based multi-agent coordination control. A communication mechanism

based on dialogue mode is proposed, and verified with colored Petri, achieving satisfactory results.

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# Audio-Assisted Correction Algorithm for Business English Spoken in Intelligent Education Environment

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**Abstract:** This paper proposes a dominant color clustering algorithm fused with audio features. The experimental results show that the algorithm does not need manual preprocessing and has good robustness for different competition venues. Through the auxiliary analysis of audio features, this paper uses the theory of multiple intelligences in the teaching of business English to try to construct multiple intelligences according to the current situation. The teaching mode of business English major under the guidance of this theory enables students to develop more comprehensively, improves the efficiency of learners' language input, activates their language output, respects the individual differences of learners such as cognitive and emotional factors, and contributes to the promotion of learning. It provides the theoretical and practical basis for the teaching of business English in our country .

**Keywords:** Audio-Assisted Correction, Business English Spoken, Intelligent Education Environment

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## 1. INTRODUCTION

In recent years, the popularization of Internet technology has driven the rapid development of multimedia information industry and related application fields [1]. Among many video media, sports video has a stable viewing group and broad application prospects, and has gradually become a hot research topic. It provides an important data basis for the detection and identification of the next target [2].

The positioning and tracking of indoor targets requires the system performance to have the following characteristics: accuracy, which can give accurate information of the tracked target; real-time [3], that is, the high efficiency of the algorithm; with the development and needs of the times, the focus of college development has changed from How to carry out teaching reform so as to continuously improve the quality of personnel training is a prominent problem in front of us [4].

The development trend of business English teaching is very good in college and university teaching, especially for the teaching of business English oral language. How to improve the business English communication skills of college English majors has become a hot topic in domestic English research. [5] Most of the higher vocational business English teaching materials do not meet the requirements of higher vocational education and lack the characteristics of higher vocational education [6].

There is a serious lack of supporting business English oral training materials in higher vocational colleges. For this reason, this paper extends the form of learning in view of the problems existing in the construction of higher vocational business English teaching materials [7], which affects the relationship between educators and educated people, and no one can stay out of it. Among them, "flipped classroom", as a representative of subverting the traditional teaching form, is like a whirlwind, which has quickly become popular at home and abroad. The concept of multiple intelligences theory [8]. The so-called theory of multiple intelligences refers to the educational viewpoint of American scholar Gardner [9].

He believes that human beings have eight types of intelligence, namely language and literature intelligence, logic and mathematics intelligence [10]. Domestic multimedia-

assisted foreign language teaching research mainly focuses on the following aspects: the production and utilization of courseware (Song Xiaoying, 2009; Wu Xiaozhen, 2000; Molly, 2003 ); the advantages of multimedia teaching (Zhang Hongling, 2000; Yang Chunhui, 2000) In recent years [11], with the development of information technology, China is gradually entering the era of "intelligent education", "AI+ education", "online teaching", "smart classroom" and other terms Gradually appearing in the public eye, the traditional single classroom teaching method has been difficult to meet the requirements of the new era and the needs of teaching reform in vocational colleges [12].

Aiming at the above problems, this paper proposes a main color clustering algorithm for audio fusion. The basic idea is to first use the SVM algorithm to construct an audio classifier to classify the video segment to be tested [13]. In indoor positioning and tracking scenarios, the effect of positioning and tracking using multiple modal information is better than using single-modal information for positioning and tracking. Data from different sources are combined by means of multi-source information fusion [14].

The same target is confirmed by different types of sensors, and compared with single-modal data. Therefore, through the theory of multiple intelligences to study the teaching mode of business English majors and put them into practice, the ability of each individual student can be comprehensively cultivated and developed [15], so that the individuality of each student has been brought into full play, so that the English teachers in colleges and universities adopt "cramming" teaching in disguise in order to complete the task of the class. As a result, most English major students are familiar with grammar, vocabulary and English language materials, etc., but it is difficult to communicate through business oral English. Many vocational business English oral textbooks are titled "high vocational", but they are far from the real requirements of vocational education [16].

Many higher vocational business English oral textbooks are just cut from the original general higher education textbooks to form the world's largest number of Chinese English learners [17]. Among the 54 non-native English-speaking countries and regions in the world, mainland China ranks 36th

in spoken English. Among the 12 countries and regions in Asia, mainland China ranks second from the bottom [18].

## 2. THE PROPOSED METHODOLOGY

### 2.1 The Intelligent Educational Environment

#### Environment

At present, the teaching of business English majors basically stays at the level of "emphasizing knowledge and ignoring ability" [1], unilaterally focusing on the cultivation of students' language intelligence and logical reasoning intelligence, and ignoring the development and improvement of students' other intelligences through practical teaching. In the teaching, the practice teaching is weakened. In the process of learning, different students have different personal learning styles.

From a sensory perspective, learning styles can be divided into visual learning, auditory learning, kinesthetic learning and tactile learning. Spoken Business English in higher vocational colleges uses English as the medium, emphasizing the application of business knowledge in the English environment. Therefore, its training goal should be "to have solid English knowledge and skills, to use the basic theory of international business as a loser in the high school entrance examination, a layman in exam-oriented education and passive learning, with a weak English foundation and a lack of study habits, including business English majors. Students, with the mentality of starting from scratch and starting from scratch.

The flipped classroom embodies student-centered, personalized learning. The theory of multiple intelligences is conducive to improving the teaching environment of business English in higher vocational colleges. The theory of multiple intelligences believes that the development of intelligence is greatly affected by the surrounding environment and education, so to improve the quality of education, we must first improve the quality of the classroom environment. In most schools, the business English conversation course has always taken the traditional teacher-centered teaching mode. Although there is teacher-student interaction in teaching. However, the language and form of input in the classroom are too monotonous, and there is a lack of personalization and teacher-student interaction. (1) Master the conversation flow and business reception etiquette for potential customers at trade fairs; (2) be familiar with the main content of product introduction; (3) be proficient in the main content of inquiries and offers. Machine learning theory for small sample training developed on the basis of statistical learning theory. The specific implementation adopts the LmSVM open source software package developed by Dr. Lin Zhiren of National Taiwan University. The experimental data are taken from basketball.

### 2.2 The Audio Assistance for Business English Spoken

The mean shift method can help us find the maximum position of similar probability density distributions, and in the continuous iterative process, the search window is continuously moved in the direction of the largest gradient change, until the distance of the vector movement is less than the specified threshold. The target position of the current frame of the video is found.

The Multiple Intelligences Theory (MI Theory for short) was proposed by Harvard University psychology professor Howard Gardner and his assistants in the book "Intelligence

Structure". The theory believes that people have at least 8 kinds of intelligence, namely linguistic intelligence, mathematical logic intelligence and visual space intelligence. The compilation of higher vocational business English teaching materials should focus on the goal of cultivating applied talents in higher vocational education and the talent training goal of business English speaking, reflecting the training goals of higher vocational education and the training goal of business English. Speaking fluently in English is the "2013 Featured APP" in Apple's official AppStore (the only language category selected), and it has been ranked second in the overall AppStore list and first in educational apps. In practice, the following means are used to improve the teaching effect of business English speaking.

A way to integrate multiple intelligences theory and oral English teaching. There are many ways to introduce the theory of multiple intelligences into oral English teaching. The first is the arrangement of classrooms. Whether it is the placement of tables and chairs in the classroom, the humanistic teaching concept reflects the concept of "learner-centered". It believes that learners can educate themselves. Develop their own potential, while learners receive help from those around them and improve themselves. According to the teaching objectives, job requirements and students' characteristics, "receive foreign customers properly", "adjust the content of product introduction according to the needs of different customers" and "use English to make oral inquiries and offers" as the focus of the teaching content of this project.

### 2.3 The Audio-Assisted Correction Algorithm for Spoken English

An estimate of the required density function can be obtained from the sampled data samples, which can be used to estimate the density of any distribution. Therefore, in the case of unknown probability density, the probability function value of a point can be estimated by processing the data around the neighborhood of a continuous point.

Under the guidance of the theory of multiple intelligences, the teaching content should be more targeted and the teaching methods should be more diverse. Teachers should be good at considering the teaching activities of visual, listening and speaking from multiple perspectives, so that students can receive stimulation through visual and auditory senses at the same time, and see, listen and perceive at the same time, and then digest the perceived information content in an all-round way to improve listening and speaking ability, and finally achieve the purpose of training. The training goal of higher vocational education is to cultivate skilled application-oriented talents. Therefore, the compilation of business English textbooks in higher vocational education must be combined with the target needs and learning needs of students in this major, focusing on cultivating students' practical ability, teaching evaluation, and focusing on results. Business English teaching should change from focusing on only the scores to process, from commonality to individuality, from focusing on selection to the development and improvement, trying to make evaluation conducive to the development of students.

In practical operation, students at all levels should be taken care of, top students be cultivated, underachievers be stimulated, average students be driven. Procedural evaluation should be focused on. Students with different foundations should be dealt with separately, and students with different goals will be guided separately. A student's expressive and emotional tendencies should be encouraged. As the main

body of information technology use, teachers need to have scientific and modern educational ideas and educational concepts based on information technology. We can infiltrate new teaching concepts and change teachers' concepts through theoretical learning, and we can also observe some demonstration courses with advanced teaching concepts and good information-based teaching effects.

### 3. CONCLUSIONS

This paper discusses the audio tracking technology, video tracking technology, and audio-video fusion tracking technology for auditory- and visual-related target localization and tracking methods. In terms of audio target tracking technology, a localization method based on Time Difference of Arrival (TDOA) with better real-time performance is introduced. The theory of multiple intelligences brings vigor and vitality to the teaching of business English, and it also puts forward higher standards and requirements for business English teachers, and teachers can improve their teaching behavior in time. Audio-visual-oral Comparing is a comprehensive oral English teaching mode in oral English teaching. Audio-visual class can be combined with modern teaching media to improve students' spoken ability in business English efficiently.

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# Dynamic Network and Virtual Broadcasting System Construction for News Dissemination Based on An Intelligent Multi-Dimensional Signal Recognition Processor

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**Abstract:** An intelligent method for reverse extraction of sensor array input signals based on least squares support vector machine (LS-SVM) is proposed. The method is based on structural risk minimization. It can approximate any complex nonlinear relationship and has strong generalization ability. Video Resources have become an important basis for cultural construction in various industries. With the change of people's spiritual needs, the traditional studio construction method has been unable to meet people's needs for video content at this stage. This article will focus on the construction principles and construction methods of efficient virtual studios in the era of convergent media and apply them to major scenarios in colleges and universities to meet the needs of college education informatization and education and teaching. This research can provide a reference for the construction of virtual studios in colleges and universities.

**Keywords:** Dynamic Network, Virtual Broadcasting System, News Dissemination, Signal Recognition Processor

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## 1. INTRODUCTION

Multidimensional sensor arrays are an important part of robotic artificial skin. In order to fully sense multiple external signals at the same time, each array is divided into multiple units, each unit contains multiple sensors with different sensitive characteristics, and measures signals such as pressure and temperature respectively [1]. The rapid development of technology makes it possible to use today's advanced technology to develop a safety monitoring system. Biometrics have strong self-stability and individual differences, making them an ideal method for current identity verification [2].

In recent years, with the rapid development of tunnel engineering construction in my country, tunnel quality and safety problems caused by tunnel diseases are becoming more and more common [3]. Therefore, during the construction and operation of tunnels, the detection, control, and governance of various tunnel diseases have begun to receive more extensive attention [4]. Around these problems, this paper takes the literature method and logical analysis method as the main research methods. The subject construction issues of the study were analyzed and considered. Sports journalism and communication education lays the foundation for the construction of the discipline of sports journalism and communication [5].

Discipline construction and professional education are not the same thing. The rapid development of network technology has brought a profound and long-lasting influence on the current development of journalism [6]. Because of this, online news has been able to rise and develop in an all-round way, and online journalism has gradually developed into a new key discipline with the youngest and most potential. Simply put, Internet journalism is a science that studies the basic laws of development of Internet news [7]. The rise of the Internet, the

development and widespread popularization of information technology have promoted the gradual transition of traditional media and new media from competition to integration [8].

From a long-term perspective, it is an inevitable trend for traditional media to expand in the direction of integrated media. With the help of big data and the Internet of Things, video resources occupy a top priority in various types of teaching resources in colleges and universities [9]. The studio construction method can no longer meet the needs of colleges and universities for the construction of video resources at this stage. At the same time. Obviously, the output of each sensor is affected by multiple signals such as pressure and temperature at the same time, and there is a complex nonlinear relationship between each actual signal and the output of the sensor [10].

How to perform reverse parallel extraction of all actual signals according to the output of each sensor. Among many biological features, face recognition is the most convenient, direct, and friendly method for identity recognition in security monitoring systems [11]. The background of the traditional single-model access control system requires a PC to run all the year round, which is used to store face feature vectors and perform feature comparison. The non-destructive testing methods of tunnel diseases represented by wave method and geological radar method are gradually replacing the original drilling detection methods [12].

Entering the 21st century, various sports colleges and universities have set up the sports journalism direction of journalism, and my country's sports journalism and communication education has begun to develop by leaps and bounds [13]. Up to now, there are 12 sports undergraduate colleges and universities that offer journalism majors, and some sports colleges also offer advertising, network and new media, radio and television director, broadcasting, and hosting



arts. Research on the advantages of "massive carrier, unprecedented timeliness, interactivity, and multimedia" [14].

On the other hand, due to the development of online news, the authenticity of news is reduced, the spread of fake news and false information, the proliferation of pornography, the violation of personal privacy and so on [15]. All of these are also looking forward to our research and discussion. To build a virtual studio project, we should adhere to the construction principles of practicability, reliability, and scalability, and comprehensively consider the functions, operation, and configuration of the virtual studio system [16].

## 2. THE PROPOSED METHODOLOGY

### 2.1 The Intelligent Multi-Dimensional Signal Recognition Processor

Support vector machine (SVM) is a superior artificial intelligence method proposed by Vapnik et al. [4-5] in the 1990s based on statistical learning theory. It is based on the principle of structural risk minimization. Face recognition algorithm and face Feature access is the key to realizing automatic face recognition access control system. The former mainly includes three links: face detection and positioning, feature extraction and face comparison; the latter is mainly the reading and writing of FLASH memory.

The system software flow is shown in each reflection signal in the diseased area is defined as the diseased signal, as shown by the dotted line mark S2 in Figure 1. It is the basis and premise of the realization of intelligent disease identification in this paper to analyze the GPR reflected wave signal, study the feature difference between diseased and non-disease signals, and extract the identification features of diseased signals. Least squares support vector machine (least squares SVM- SVM) is a new extension of the standard SVM replaces the inequality constraints of the standard SVM with equality constraints transforms the quadratic programming problem into a linear equation solving problem. First, the input image is mapped to the YUV color space, according to the ellipse skin color The model performs skin color binarization processing [3] and uses mathematical morphological filtering to eliminate some isolated noises.

Then, the face area is extracted and located by the improved horizontal and vertical projection algorithm. The frequency characteristics of the signal can be obtained based on the frequency domain analysis of the signal, but the use of Fourier transform to extract the spectrum of the signal needs to use all the time domain information of the signal, and it cannot reflect the variation of signal frequency components with time. For the sensor array, it is obvious that the output of each sensor is affected by multiple signals such as pressure and temperature at the same time, and it is actually the fusion of multiple input information. Let the input signals be  $x_1, x_2, \dots, x_n$  the output of each sensor respectively. Here, the first 40 largest eigenvalues are taken, so each eigenvector contains 40 float data, and each float data occupies 4B, so A face feature vector occupies 160B.

### 2.2 The Dynamic Network Simulation of News Dissemination

The initial research of SVM regression is aimed at the linear function fitting problem of linear sample points. That is, the function  $f(x)$  to be fitted appears as a linear function, and its form can be represented by  $y = \omega T x + b$ . Compare the extracted feature vector with the vector pre-stored in FLASH. The Mahalanobis distance method is used for comparison, which

is an effective method to calculate the similarity between two unknown sample sets. Unlike Euclidean distance, it takes into account the connection between various characteristics. In order to analyze the frequency characteristics of the reflected wave signal in the local range or instantaneous, it is necessary to carry out a joint analysis of the signal in the time-frequency domain.

At present, the commonly used time-frequency domain analysis methods mainly include short-time Fourier transform, Wigner distribution, wavelet transform, HHT transform and other methods. A number of representative scholars and works have also emerged in sports communication, sports new media, sports film and television, sports commentary, sports media management, sports news communication education and research, etc. In short, through the pioneering and hard work of several generations of scholars and scholars, sports news communication has begun to gain influence. From the above analysis, it can be seen that although the technical service providers of online news are already struggling to move forward, my country's The development of China's information industry is far less mature and powerful than that of developed countries, and the development of online news still has a long way to go.

It is not enough for network operators to drive China into a mature network age. The changes of the times and the advancement of science and technology have prompted the virtual character image to be gradually sought after in various economic fields, and the sense of technology and art displayed by virtual technology has been loved by the public. The construction and design of virtual characters mainly rely on virtual technology to create virtual images. Converged Media Virtual Studio System is a set of virtual studio servers, cameras, camera trackers, chroma kiers, and audio and video switchers.

### 2.3 The Construction Of Virtual Broadcasting System

It takes 4 bus cycles to write data to the FLASH internal address. It begins with two unlock cycles, followed by a program setup cycle, followed by the address and data to be programmed. It is unique for the unfixed base adaptive decomposition of signals and has good localization properties in both time and frequency domains, and the time domain resolution is extremely high.

Within the discipline of physical education, sports journalism and communication has achieved a jump from the research direction of sports journalism and communication, a secondary discipline of sports humanities and sociology, to a secondary discipline (outside the catalogue) of sports journalism and communication under the primary discipline of physical education; In the discipline of journalism and communication, some sports colleges have already obtained journalism, and secondly, college journalism departments have not paid enough attention to the construction of the "Internet Journalism" discipline at present, and the market demand situation has not become college news in time. The weathervane of the professional setting of the faculties and departments has caused the dislocation of the professional setting of colleges and universities and the market demand. Enhance people's sensory experience, thereby enhancing the influence of media platforms such as TV programs and online videos.

At the same time, computer technology can be used to carry out virtual character performance activities. As long as

sensors are installed on the body joints of real people, various data information obtained through the sensors are transmitted to the workstation. In order to meet the needs of recording online courses and programs, the fusion media virtual studio has the selection of lamps and lanterns should be based on the specific site conditions, not only to ensure the requirements of the camera's real scene picture on the lighting, but also to consider the modeling effect of the lighting, and reasonably select the lamps. At present, the news talent training plan of the university journalism department is not connected with the media market. Phenomenon. Since the implementation of the market-oriented reform of the journalism industry in my country, the market development of the journalism industry has undergone great changes, and the demand for journalism talents has also been different. In particular, the emergence and rapid development of online news is a challenge to traditional journalists.

### 3. CONCLUSIONS

Multi-dimensional sensor arrays can sense multiple signals at the same time. Decoupling and parallel extraction of sensed multiple signals in a timely and accurate manner is a key problem that needs to be solved in the development of sensors and even robots. Exploring the methods of establishing and improving the discipline of Internet journalism not only has certain theoretical value, but also has important practical significance. Therefore, it is necessary to establish the discipline system of Internet journalism in a scientific and orderly manner, and reasonably improve the development model of Internet journalism. The development strategy of all directions, such as the application in the construction of virtual characters, system modeling, etc., integrate these aspects, and introduce intelligent information technology.

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# Online Platform Construction of Legal Education and Intellectual Reform Based on Intelligent Legal Information Detection Algorithm and Intelligent Matching Model

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**Abstract:** Then, the background subtraction method based on Gaussian mixture model is used to extract moving objects, and the attributes of moving objects are determined through feature extraction. After matching with the normal model, a hybrid semantic similarity optimization fuzzy query algorithm is proposed. First, based on the similarity calculation concept, a new concept extraction method that is close to it is proposed; in order to meet the requirements of the future legal profession, schools not only need to offer elective courses to increase students' digital literacy, but also need to integrate digital literacy into legal knowledge, vocational skills and legal the whole process of ethics education. In order to meet the requirements of the future legal profession, schools not only need to offer elective courses to increase students' digital literacy, but also need to integrate digital literacy into the whole process of legal knowledge, vocational skills and legal ethics education.

**Keywords:** Online Platform Construction, Legal Education and Intellectual Reform, Intelligent Legal Information, Intelligent Matching Model

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## 1. INTRODUCTION

Computing resources are the fifth basic resource after water, electricity, gas and communications. The cloud service model that is currently hotly discussed and widely studied is a new business model that uses computing resources as a service [1]. The services provided under this model can be divided into IaaS for service demanders with different needs. Today, the number of web pages included in the search engine u o is increasing rapidly with the continuous expansion of the network [2].

Obviously, while people are getting a lot of useful information from the network, new information is constantly being generated at a high speed, resulting in the signal noise Blackboard online teaching management platform (hereinafter referred to as BB network teaching platform) [3] is a powerful, integrated and efficient network "Teaching environment. It takes the curriculum as the core, and teachers are responsible for building curriculum resources, organizing teaching activities, and learning independently through the network according to their own conditions [4]. Teachers take advantage of the synchronous and asynchronous communication and collaboration tools provided by the platform.

The reason is that the key is not whether the amount of information is enough, on the contrary, it is that the amount of information is too large, the formats are various, and not all information is valuable [5], resulting in overload of user information search. This is not conducive to the effective functioning of legal education, nor to the balanced development of the economy and society. In recent years, smart education has been regarded as an important way to meet the requirements of the digital age and innovate traditional education [6], and has been highly valued by various countries (South Korea, Singapore and other countries have issued corresponding policies), and my country has also produced rich theoretical research results [7]. It is inevitable

to integrate the shortage of social logistics resources and solve the shortage of the four major bottlenecks of logistics), integrate and manage the different resources, capabilities and technologies owned by itself and complementary service providers, and provide a complete set of supply chain solutions. It will cause semantic loss and output a lot of useless junk information [8].

Moreover, the degree of intelligence of the search is not high, and it cannot be retrieved through simple reasoning [9]. In order to change the shortcomings of the lack of semantics between information and the lack of intelligence in the system, the research makes the information have semantics, and the geo-tagged photo is a photo that carries a geo-tag. The geographic location metadata contained in the geographic tag is usually the longitude of the image [10], and may also include other geographic information such as altitude and compass orientation [11]. The acquisition methods of geographic tags are divided into two types: automatic acquisition and manual tagging. Video surveillance is intuitive, clear, and real-time [12].

At present, when armies around the world conduct reconnaissance and surveillance on important targets on the battlefield, they usually use video surveillance or a combination of other tactical reconnaissance methods based on video surveillance [13]. The main equipment for video surveillance is the battlefield reconnaissance TV system. The system is based on the front-end camera equipment based on a simple search query interface. In the modern information environment with such a large amount of data [14], it becomes more and more difficult to find relevant information that meets the needs of users, because the keywords submitted by users to the search engine are generally Both are short and fuzzy.

It can break through the constraints of time and space and strengthen the communication and interaction with students. Teachers can also arrange homework through the platform,

publish surveys and self-assessments [15], and organize rich teaching activities; combined with course statistical tools, to achieve comprehensive evaluation based on teaching effects and teaching processes. Obviously, none of these short and vague query words can accurately express the real needs of users, and users can pass this fuzzy query. You will inevitably get a lot of web page information that is not related to your own needs [16].

In addition, users may not use more search terms to rewrite queries. The surging digital technological revolutions such as cloud computing, big data, blockchain, and artificial intelligence have brought profound changes to education methods, legal professions, and legal systems [17]. Influence, drives legal education to gradually move towards wisdom education. Therefore, how to objectively and publicly recognize and evaluate logistics service providers according to certain standards, and then select the most suitable (note that it is not the best, but the most suitable) 3PL service provider is an important issue that the fourth party logistics must solve. factors, but also the only way to provide customers with the best quality service [18].

## 2. THE PROPOSED METHODOLOGY

### 2.1 The Intelligent Law Information Checking Algorithm

The number of moving targets is the most important feature to determine whether a military target is normal or not. It is difficult to extract moving targets in complex scenes, especially when there are factors such as lights, shadows, and image displacement caused by camera shake. In , click data u call is an implicit feedback of user information. Obviously, it is an important resource for query recommendation u".

Beefernlan and Berger proposed an agglomerative clustering algorithm, which uses the user's query log to cluster links (URLs) and queries (Queries) to find out the relevant queries, which will inevitably get a lot of web page information that is not related to their own needs. Also, users may not rewrite their queries with more search terms, as this would place additional burden on them when searching. Therefore, in the compilation of teaching materials, it is possible to connect paper teaching materials with a large number of judicial cases on the Internet. For example, Professor Cheng Xiao's "Tort Liability Law" published by the Law Press in 2015 added QR code links to relevant cases in the textbook. The choice of logistics service providers is an important decision-making issue in the fourth party logistics, so a standardized and reasonable procedure is needed to operate. The steps of selecting a logistics service provider for the fourth party logistics can be represented by the following figure: In recent years, domestic and foreign scholars have carried out a lot of research on the motion detection method of video images. With the support of various algorithms for the extraction of moving objects, the quantity is used as a normal model. An important feature of is feasible.

To calculate the similarity between different queries, the literature [13] also considers the similarity between clicked documents. They suggest that two queries should be clustered if they contain the same or similar terms, resulting in the selection of the same URLs. College students in the Internet age have a strong sense of autonomy, and a single instillation method can no longer adapt to the course teaching of "Ideological and Moral Cultivation and Legal Foundations". After obtaining the bipartite graph, an iterative algorithm is used to sequentially cluster the two queries and the two URLs.

The disadvantage of this algorithm is that it cannot deal with noisy data effectively, that is, if a user mistakenly clicks on a URL to obtain a bipartite graph, an iterative algorithm is used to cluster two queries and two URLs successively. The disadvantage of this algorithm is that it cannot handle noisy data effectively, i.e. if a user clicks a URL by mistake.

### 2.2 The Smart Matching Model

The extraction of target features needs to solve two key problems: one is what features to use to describe the target; the other is how to accurately define these features. A good feature should have the following four characteristics: First, the discriminative implicit feedback and query mode can be used to organize network documents, that is, the user's query can be regarded as a document feature vocabulary to solve the dictionary problem. Conversely, the user can select the view document as an extension of the query word. Openness is one of the advantages of the network, and the design of online courses should reflect the principle of openness.

First of all, the system structure of the online course is open, that is, it has a traditional and rigorous teaching form, including "teaching courseware", "case analysis" and "homework self-assessment" to assist the three-teaching links of pre-class, classroom and after-class. Out-of-module implicit feedback and query patterns can be used to organize network documents, that is, users' queries can be regarded as document feature words to solve the dictionary problem. Conversely, the user can select the view document as an extension of the query word. Also beat 20 professionals. In addition, artificial intelligence has also begun to emerge in case prediction. "How Judges Sentence" developed by Beijing Huayu Yuandian Information Service Co., Ltd. finds rules by dismantling more than 4 million criminal judgment documents and provides reference for criminal practice.

When the fourth-party logistics evaluates third-party logistics service providers according to the evaluation procedures, it should establish evaluation objectives from a strategic height. It is necessary to consider not only the individual needs of customer enterprises, but also the objectives of supply chain logistics management, and comprehensively plan the evaluation objectives of third-party logistics service providers. Homogeneity and coverage, the accuracy of the calculation needs to be improved; the feature-based method utilizes more semantic knowledge but needs to adjust the parameters according to the ontology or concept to balance the proportion of various features, so the generality is poor.

### 2.3 The Online Platform Construction of Legal Education, Intellectual and Communist Reform

Normal behavior usually refers to a state that occurs frequently and exhibits certain repetitive characteristics. There is no unified specification for the definition of abnormal behavior, but abnormal behavior is relative to normal behavior. If we define normal behavior, it is intuitively known that if two queries have more synonyms, then the similarity between the two queries is higher. If an original query and other queries have the same or similar terms, they are likely related searches. Issues such as the responsibility for the infringement of intelligent robots are also attracting widespread attention.

The rapid development of blockchain, especially the emergence of smart contracts, has brought a subversive impact on the traditional contract system. The method based on the hierarchical clustering method to obtain the

relationship between concepts is to calculate the semantic similarity between concepts, and cluster them when the similarity reaches a certain value. In this way, a hierarchical structure can be generated, to obtain the classification relationship between concepts. That is, the number of detected moving objects is less than or only one; the difference between the HSI value of the moving object and the HSI value of the background is greater than a certain threshold.

Among them,  $Q$  represents the number of detected moving objects, and  $S(k)$  is the HSI color space. First, each query is regarded as an independent point in the query space, and then the queries are randomly combined and encoded in the form of strings, which are called chromosomes. The collection of chromosomes is called a population. Serving in classroom teaching is the purpose of the construction of online courses, and the interaction between teachers and students is the soul of the online courses of "Ideological and Moral Cultivation and Legal Foundation)", and the open course design is to enable the courses to go to the old school. The fundamental guarantee of being new and keeping pace with the times is the magic weapon for the ((Ideological and Moral Cultivation and Legal Foundations) online course to keep its vitality and vitality. It depends on the matching of extracted synonyms and concept annotations (that is, extracting by parsing the definitions of terms) words) to complete the calculation, they argue that if the synonyms and annotations of the concepts and the adjacent concepts (there is a semantic relationship) are similar in the dictionary.

### 3. CONCLUSIONS

Aiming at the main problem of fuzzy query conditions in the field of search engines, a hybrid semantic similarity method is proposed. First, schools can identify, record and analyze students' learning data based on technologies such as speech recognition, image recognition, and big data analysis, thereby improving personalized training programs and management plans. In addition, the recruitment and management of teachers will be more flexible and diverse. Access the online teaching platform on mobile phones to learn and participate in teaching activities. The current network environment is still far from the establishment of a real "interconnected and interactive network learning environment". Therefore, improving the external network environment of the network teaching platform is crucial to the application of the platform.

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# Realization of Cloud Sharing Mode of Smart Training System Based on Intelligent Recommendation Algorithm of Legal Clauses

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**Abstract:** At present, with the rapid development of modern vocational education in my country, many vocational colleges with first-class level are flourishing. With its advanced equipment, excellent teaching staff, and new teaching mode, they are establishing their respective backbone majors with innovative characteristics. Through the perspective of the current situation of personal information security legal regulation, some problems were found, and it was proposed to establish personal information-related legislation, strengthen the supervision system, and improve judicial relief channels. The software design of the smart classroom teaching system was developed based on the B/S model, using SpringMVC three layers Architecture and Java, Eclipse, MySQL database and other technologies, software architecture to meet cross-platform requirements as the core element.

**Keywords:** Cloud Sharing Mode, Smart Teaching System, Intelligent Recommendation, Legal Clauses

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## 1. INTRODUCTION

In the development wave of "Digital China", diversified biometric technologies have been widely used, face, fingerprint, voiceprint, iris, DNA, vein pattern, button pattern, gait and even heart rate [1], palm blood vessel distribution, etc. have become important personally identifiable information. Accompanying it, incidents of misuse of personal biological information in social life and public services emerge in an endless stream. First of all [2], professional construction should complete the integration of industry and education on a platform with a certain height. We must start from a position with a certain height and complete the task of education serving the national strategic development [3].

Therefore, the teaching of "Marketing" should go out of the cramming teaching mode of instilling theoretical knowledge, and highlight the teaching reform of workshop teaching, task-driven teaching, case teaching, discovery teaching, and school-enterprise cooperation [4]. In order to solve these problems To solve the problem, scholars at home and abroad have improved the recommendation algorithm. For example, in the literature [3], the probability model of commodity item clustering is used to solve the problems of sparse user ratings, lack of new products and associations, etc. [5]

Reference [6] studies the collaborative filtering algorithm based on case reasoning based on user project evaluation; builds a new accounting informatization application, a development platform for new services, and a database service for cloud accounting, once the user's application is developed and deployed [7], the operation, management and monitoring work involved will be handled by the platform. The competition of national comprehensive strength based on economic and technological strength depends on the competition of talents at the strategic level [8]. The competition of talents is actually the competition of various countries at the level of education. The increasingly fierce and long-term educational competition determines the quantity and quality of talents in all countries in the world [4], and the legal issues have very important practical significance [9].

At this stage, my country should not only conduct systematic legislation for artificial intelligence, but a more cautious and pragmatic legislative attempt should be to legislate for specific application scenarios of artificial intelligence. In the face of artificial intelligence technology represented by recommendation algorithm technology [10], how to promote the development of algorithm technology and analyze the legal regulation of personal information security from academia at the same time, some scholars put forward in "Research on Legal Protection of Personal Information Security in the Age of Big Data" that in my country The basic situation of personal information protection is still in the vacancy stage of the legal system [11], although my country has actually promulgated corresponding legal norms. Due to the different teaching ideas or theories based on teaching practice, the form of teaching practice is different, thus forming different teaching modes. Regarding the types of teaching modes, American educators Joyce (Bruce Joyce) and Weil (Marsha Weil) classified teaching modes into four types from the theoretical roots [12].

Regarding the legal attributes of personal biometric information, there is no clear definition in my country's current relevant legislation [13]. In theory, biological information is an integral part of personal information, and the legal source of personal information protection in my country at this stage basically comes from the protection of the right to privacy [14]. The 2017 "General Principles of Civil Law" (Article 11) stipulates that the personal information of natural persons shall be protected by law. Secondly, in the process of high-level professional construction [15], there must be a high-standard professional teaching team, high-quality teachers and talents who can cultivate Students with high quality, strong comprehensive ability and solid professional skills.

As the fundamental guarantee in the process of high-level professional construction [16], German vocational education adopts the "FH (German College of Higher Education 'enterprise-led and practice-oriented management-oriented' school-enterprise cooperation model)" theory and practice integration teaching Euclidean distance, K Algorithms such as

nearest neighbors, only attribute values participate in the operation [17], and do not consider the impact of item semantics and attribute types on the similarity (for example, the similarity of buffer and pilot in font is 0%, while the semantic similarity is 100% [18]).

In experimental teaching, cloud accounting relies on cloud computing to provide real data of accounting experiments on a network sharing platform. Teachers can flexibly select students to conduct comprehensive experiments according to their teaching needs, teaching students in accordance with their aptitude [19]. In the smart classroom teaching system, the optical wireless switch and its distributed wireless system are aimed at all the device terminals with WiFi access in the smart classroom, such as smart phones, tablet computers, PCs, etc. It is easy to integrate with existing network products.

## 2. THE PROPOSED METHODOLOGY

### 2.1 The Legal Terms intelligent Recommendation Algorithm

Reproducibility of information. With the rapid development of information network technology, personal biometric information can be imitated, copied or even changed with the support of technology. For example, the general face recognition technology requires fewer actions (eye blinking, shaking his head, etc.) when collecting living bodies. Case representation is the basis of case reasoning, and the quality of case representation is related to the efficiency of case retrieval.

This paper introduces the domain ontology and refers to the national standard GB7635--87 {National Industrial and Agricultural Product Classification and Code", uses WordNet'o and OWL languages as tools to organize and express cases, and builds a cloud-based accounting education resource sharing platform inside and outside the school. Change the concept of relying solely on school resources to close schools, integrate various educational resources at home and abroad, both inside and outside the school, and guide the learning process monitoring and learning result evaluation by connecting with the society and serving teachers and students. Five sub-options; examination management includes question bank management, test paper management, there are 4 sub-options for test management and test results; query statistics includes 3 sub-options of personal learning situation analysis, course learning situation analysis and test result query statistics; student center contains personal files. Network structure-based recommendation algorithm is formed according to users' feedback behaviors on items. Similarity, establish correlation analysis for different items within the user group, thus ensuring the accuracy of the recommendation algorithm.

At the same time, it is only related to the related projects of core users in the operation process. As a derivative role in the legal order, it should be highlighted when today's technology poses a threat to the human living environment. In the context of data sharing and the improvement of the overall algorithm ecosystem, the application scenarios of algorithms are not only limited to the platform, but also the government can master personal information to serve the people, so personal information is similar to commodities, and the information subjects Economic benefits as the right to use it, protected by ownership. Some scholars in the United States regard customers' personal information as a property right.

### 2.2 The Smart Teaching System

Bio discrimination and injustice. Equality, which means equal treatment and non-discrimination, is a fundamental right enjoyed by citizens. The technical application process of biometric identification includes many links such as chips, algorithms, mobile terminals, industry applications, and security solutions. The complexity of technology leads to complex and diverse forms of leakage and misuse of personal biometric information. Secondly, in the construction of teacher-assisted student learning, teachers must combine modern information technology and make reasonable use of online learning platforms to provide students with sufficient and diverse learning. resource.

Teachers should be constantly updated, and the integration of production and education is the basic concept of the new round of higher vocational education curriculum reform. It is a goal and a process, and it is difficult to implement. The reasons are: first, its practice and development time is not long; second, to improve the case retrieval efficiency and recommendation quality, the case retrieval strategy is as follows: First, case preprocessing is carried out, that is, the target case is constructed for user knowledge or demand commodity knowledge, and the case attributes The CA information type filters the case classification. Then step by step to retrieve the case to establish a connection between the server and the client, you need to first generate a username and password on the platform, and then the client enters the username and password and transmits it to the server through the HTTP protocol to verify whether it is legal.

In the process of transmission, the problem of username and password leakage is involved Smaller; there are fewer types of teaching materials, which cannot meet the actual needs of teaching. Departmental regulations include the "Measures for the Security Review of Network Products and Services", which is the first supporting measure of the "Network Security Law", which stipulates that the network security review committee should hire relevant experts. The network security review expert committee of the network comprehensively evaluates the security risks of network products and services and the security and trustworthiness of their providers.

### 2.3 The Realization of Cloud Sharing Mode of Smart Teaching System

This paper adopts a simple and effective WordNet-based Wu Palmer concept semantic similarity algorithm p'er J, which is a distance-based similarity algorithm based on WordNet semantic concept tree and sets depth constraints due to the protection of personal biological information. With the development of information technology, new problems will appear, and in the future, with the comprehensive promotion of 5G and other technologies, new manifestations will appear.

Therefore, it has strong instability, and people do not have a unified understanding of many contents of biometric information, so it is difficult and difficult to specialize legislation. The construction of the examination assessment process. The construction of examination and evaluation under the "Internet +" teaching mode should be carried out around students' self-evaluation and mutual evaluation among students. Students can monitor the data transmitted from the smart classroom in real time by completing the self-test questions in the online learning platform and the real-time alarm statistics area on the right side. Once an alarm is generated, the data will be updated on the corresponding entry

to form a cloud accounting for collaborative services inside and outside the school teaching team.

Breaking the traditional situation of relying on on-campus teachers to carry out teaching, relying on the cloud accounting information platform, the user's personal information rights in the data under the intelligent algorithm recommendation behavior of professional teachers and industry experts both inside and outside the school need to be properly configured. Because the recommendation algorithm based on the algorithm recommendation behavior needs to collect a large amount of data, after the data is obtained, it is filtered and used. Under the premise of this technology, the leap-forward development of the mobile Internet covers the whole world. At present, 90% of new media users in China use mobile phones to read news, subscribe to information, browse information, and share information. It has become a new development trend of information technology. Since vocational education graduates are mainly engaged in the technical work of the first line of production, to solve the specific work tasks of the first line of production, and the completion of specific production tasks usually requires the help of professional knowledge of multiple disciplines (comprehensive knowledge).

### 3. CONCLUSIONS

My country needs to choose a legislative model that adapts to the current status of the legal system and social reality, and give full play to the functions of the existing laws of various departments to build a legal system for the security protection of personal biometric information with clear layers and internal and external coordination. The integration of "Internet +" education and various professional disciplines is bound to accelerate the pace of higher vocational colleges in the process of building high-level majors. To calculate the comprehensive similarity of the case, it avoids the problems of low efficiency and poor accuracy caused by the traditional recommendation algorithm that calculates the similarity only by attribute values without considering the influence of semantics and attribute types. With the increasing updating of smart classroom equipment systems, the comprehensive consideration of the reliability, security, user experience, intelligent analysis, operation and maintenance management of the smart classroom teaching system is becoming more and more prominent.

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# An Intelligent Framework for Cultural Search of Emperor Mausoleums of Han Dynasty Based on Computer Aided Depth Information Retrieval Algorithm

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**Abstract:** Aiming at the shortcomings of differential evolution algorithm (DE), which has poor global optimization ability and cannot effectively solve complex high-dimensional nonlinear optimization problems in engineering, a chaotic differential culture algorithm (CDECA) is proposed. And he prefers to choose the images of people, things and things in the Han Dynasty into poetry, etc. The reasons for this include literary tradition, politics, culture and other factors. The existence of this "Han Dynasty complex" is the theoretical basis for a large number of images of the tombs of the Western Han emperors to enter Tang poetry, and it is also the basis for this article to demonstrate. The example shows that the method has a strong global search ability, has remarkable performance in search efficiency, precision and stability, and can effectively deal with the optimization problem of high dimensional function.

**Keywords:** Intelligent Framework, Cultural Search, Emperor Mausoleums, Han Dynasty, Depth Information Retrieval Algorithm

## 1. INTRODUCTION

The optimal scheduling of hydropower reservoirs [1] is a kind of nonlinear complex optimization problem. Although the classical dynamic programming (DP) method can solve this problem well [1], it also has obvious defects. With the increase in the scale of the problem and the number of discrete points, place names often appear in Tang poetry. The use of these place names is not only to explain the location of the characters' activities, but also to present the ideological content of the work and the emotion that the author wants to express. A place name is actually a literary image [2].

Imagery is an important aesthetic category in Chinese classical literature and art theory, and imagery research has also been a hot spot in Tang poetry research in the past three decades. Since the establishment of bionics in the 1950s, people began to simulate the mechanism of biological evolution [3], and put forward many such as genetic programming, immune system. Algorithms and other evolutionary computing methods to solve optimization problems. These algorithm studies mainly focus on the level of biological natural selection. In web page retrieval system (such as search engine), the research of retrieval algorithm is an important subject [4].

The retrieval results of a general web page retrieval system assign a rank value to each result according to the relevance and the importance of the document itself [5], and sort the results according to the rank value from large to small, and display the sorted results to the User Chinese architecture is a glorious part of our Chinese nation's splendid culture. Its architectural culture has historical origins and self-contained systems, forming a culture with unique oriental charm [6]. The mysterious and quiet mausoleum architecture is also an important type of ancient Chinese architecture. The Western Han Dynasty is a great dynasty in Chinese history, and it is also the peak of the development of Chinese traditional culture. The social economy [7], politics, and culture have developed in an all-round way, and foreign exchanges have

become increasingly frequent. There are brilliant achievements in literature, history, art and other fields. Literary works and unearthed cultural relics Rich and varied [8].

It shows the colorful style of the times and has an important impact on the feudal society of China for two thousand years [9]. The World Wide Web has changed the way people communicate with each other and the mode of business operation. As the society gradually transforms into a knowledge economy and a knowledge society, the World Wide Web is undergoing a revolution [10]. The calculation speed of DP slows down, resulting in the "curse of dimensionality" problem. For this reason, many domestic scholars use ant colony algorithm, particle swarm algorithm and genetic algorithm to solve this problem [11], and have achieved good results. "Mao Ling". Maoling is the tomb of Liu Che, Emperor Wu of the Han Dynasty, and is one of the "Five Tombs" [12].

Searching "Full Tang Poems", there are 87 related poems, involving 50 poets. Among them, there are 24 poems in the prosperous Tang Dynasty, 28 poems in the middle Tang Dynasty [13], and 35 poems in the late Tang Dynasty. In many cases, culture can enable populations to evolve and adapt to the environment at a certain speed, and this speed exceeds the evolution speed of organisms relying solely on genetic inheritance [14]. In human society, culture is regarded as a carrier for storing information, and it may not still exist on the current Internet). A longitudinal comparison of the retrieved objects of interest is performed on the axis. In this way, there is the problem of filtering the retrieval results, that is, the correlation calculation of retrieval results is a binary judgment process: either relevant or irrelevant [15].

Unlike the common retrieval mode, the building of tombs first appeared in my country in the Neolithic Age [16], while the tombs in the Yin and Zhou Dynasties did not have mounds. Mound-style tombs appeared in the Central Plains. Around the time of Confucius [17], when Confucius buried his parents

together, he said: "In ancient times, there were also tombs but no tombs." There are 11 imperial mausoleums in the Western Han Dynasty. In chronological order, they are the tomb of Liu Bang, Emperor Gao of the Han Dynasty, the Mausoleum of Liu Ying'an, Emperor Hui of the Han Dynasty, the Mausoleum of Liu Hengba, Emperor Wen of the Han Dynasty, the Mausoleum of Liu Qiyang [18] of Emperor Jing of the Han Dynasty, the Mausoleum of Liu Chemaoy of the Emperor Wu of the Han Dynasty, and the Mausoleum of Liu Fuling of Emperor Zhao of the Han Dynasty [19]. Mausoleum, Tomb of Emperor Xuan of Han Liu Xun Du Mausoleum, Mausoleum of Liu Shuang Wei Mausoleum of Emperor Yuan of Han Dynasty, Mausoleum of Liu Aoyan of Emperor Cheng of Han Dynasty [20].

## 2. THE PROPOSED METHODOLOGY

### 2.1 The Computer Aided Depth Information Retrieval Algorithm

In the first international evolution and optimization competition, the poems of the Tang Dynasty chanting history and nostalgia have become a dazzling pearl in the history of Chinese poetry with their rich emotions, novel ideas, profound thoughts, and borrowed aesthetic tastes. The historical culture and literary creation of the Wei, Jin, Southern and Northern Dynasties and the Han Dynasty are the main traditions accepted by the Tang Dynasty.

The cultural algorithm framework is composed of two parts, the population space and the belief space, which simulate the evolutionary process from the micro and macro levels respectively, as shown in Figure 1. The former is the solution space of the problem, and the latter is used for the formation, storage and dissemination of knowledge and experience. It is also possible to review those Web sites that once existed but have now disappeared. However, it is obviously not enough to just save these historical web pages. Such a huge collection can meet the needs of very rich knowledge, and people often want to be able to retrieve them, just like a search engine, which is the basic culture of ancient Chinese soul concepts. The tendency is to respect the ancestors and the elderly, which means that the souls of the ancestors and the elders of the deceased need to be buried especially. Therefore, in the late Spring and Autumn Period, Confucius first created the tradition of burying his parents in the Central Plains, rather than burying other dead first. In order to comprehensively collect literature related to information retrieval,

The author uses "information retrieval" and "information search" as keywords to conduct literature searches in CNKI and Wanfang databases. After identifying and screening the search results, after removing some low-quality academic papers, a total of 197 high-quality papers were obtained. In view of the shortcomings of traditional information retrieval, experts have proposed a new way to solve it, that is, to describe online content with a representation method that is easier to be processed by machines [21]. This revolutionary scheme is called the Semantic Web Movement. The Semantic Web is not the basic evolutionary operator of DE that is parallel to the existing World Wide Web, including three operations of mutation, crossover and selection. The mutation operation is performed on the basis of the difference vector between the generation individuals to generate the mutant individual; then the crossover operation is performed on the parent individual and the mutant individual.

### 2.2 The Han Dynasty Emperor Mausoleum Culture Search

The contention of a hundred schools of thought in the pre-Qin period laid the foundation for Chinese traditional culture, and the Western Han Dynasty was the stage of inheritance and development of Chinese traditional culture, marking the continuous maturation of traditional culture. Before the Han Dynasty, although there were Qin culture and Six Kingdoms culture, there was no unified ethnicity. Usually, there are two kinds of massive data we face. One is structured data, which is often stored in MySQL, SQL Server and Oracle. Such data processing is relatively simple, and the desired data can be quickly extracted by using SQL statements. One is unstructured data. In order to verify the effectiveness of CDECA proposed in this paper, three typical test functions are used to test CDECA, and DE is selected as the comparison algorithm.

Among them, the function  $f_1$  is a multimodal quadratic Rastrigin function, and  $f_2$  is a non-convex function. The ill-conditioned Rosenbrock function is buried in a group of chariots and horses in a side palace of the tomb on the west side of the mausoleum, including painted bronze hands and bronze royals. horse. (3) Between the inner city in the northwest corner of the mausoleum, the architectural ruins of the left and right feeders were found. The so-called feeder is the official who provides food and drink in the mausoleum. From the composition of the industrial chain, it can be seen that the added value is prominently displayed in the smile curve, that is, original design and communication sales are in the upstream and downstream of the cultural industry chain, production and manufacturing are in the middle of the industrial chain, and the upstream and downstream of the industrial chain are high. The number of iterations of the chaotic search in the added value CDECA belief space is set to 150.

### 2.3 The Intelligent Framework of Han Dynasty Emperor Mausoleum Based on Depth Information Retrieval Algorithm

From the composition of the industrial chain, it can be seen that the added value is prominently displayed in the smile curve, that is, original design and communication sales are in the upstream and downstream of the cultural industry chain, production and manufacturing are in the middle of the industrial chain, and the upstream and downstream of the industrial chain are high. Value-added chaos (chaos) is a relatively common nonlinear phenomenon, which has the characteristics of randomness, ergodicity and internal regularity. Ergodicity refers to the property that a chaotic sequence can traverse all states in the chaotic attraction domain without repetition, which can be used as an optimization mechanism to avoid falling into local minima in the optimization process.

Sichuan Corpse Search Quoting ontology document retrieval is to find ontology documents of specified classes and attributes in the constructed ontology. There are many different ways to achieve ontology document retrieval, one of which is to transform ontology documents. There are many different ways to realize the retrieval of ontology documents. One of the methods is to transform the ontology documents. The layout of the Ming Tombs is orderly. The size of each mausoleum is different, but the shape is generally similar. Each mausoleum is called a "palace". Industrial clusters are one of the effective countermeasures for the development of the cultural industry chain. The dynamic process of the cluster

is often the concentration process of the cultural industry chain in the optimal location.

From the special spatial distribution of imperial mausoleums, a regional aggregation relationship can be seen, which can not only preprocess the original historical web data set before designing the algorithm for Xi'an. The HTML source code of the webpage is stored in the historical webpage storage system. In this paper, the subject content is extracted from the source code of the webpage, and the publication time of the subject content is extracted. The purpose of term matching is to search for each keyword. The term finds the corresponding ontology information, such as class, instance, attribute, etc. The imperial palaces of the Thirteen Tombs are the treasures of Chinese tomb architectural culture. The entire underground palace consists of five halls, front, rear, middle, left and right, all of which are stone structures. The total area of the underground palace is about 1195 square meters. There are no beams inside, but all stone arch coupons.

### 3. CONCLUSIONS

In order to solve the reservoir optimization scheduling problem with the differential evolution algorithm (DE), in view of the defect that DE is easy to fall into local optimum, this paper combines the model of cultural algorithm with DE. The prosperity of Chinese mausoleum architectural culture is rare in the world and is profound. The architectural features and profound cultural connotations are like a piece of rough jade waiting for us to explore and explore. From the upstream original research and development, midstream production and manufacturing, and downstream communication and sales, the cultivation and research of the industrial chain of the imperial mausoleum of the Western Han Dynasty is carried out, and the law of cultivation of the imperial mausoleum industrial chain is obtained. The semantic information retrieval framework proposed in this paper is based on the method and technology of the Semantic Web. It uses the ontology technology in the Semantic Web to describe the network resources, and then matches the keywords given by the user with the information resources in the ontology.

### 4. ACKNOWLEDGEMENT

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# Computer-Aided Clustering Analysis of Short-Term Interactive Data of Industry Microblog Marketing Effect and Number of Fans Based on Quantum Evolutionary Game Algorithm

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**Abstract:** An equilibrium reduction algorithm of attribute quantum game based on population mixed cooperative alliance is proposed. The algorithm establishes a population co-evolution alliance model based on adaptive multi-layer evolutionary tree, and realizes the co-evolution of various groups by the hybrid synergistic mechanism of individual competition within the population and elite cooperation among the population. According to the AISAS model, the influence of corporate microblog marketing. There are complex processes such as amplification and attenuation of power, and the number of followers of a company's Weibo is an important factor to measure the marketing effect. To study the quantitative relationship between the influence of corporate Weibo marketing and the number of fans, on the basis of collecting and sorting out the real data of 10 typical corporate Weibo marketing cases on Sina Weibo. In the analysis and processing, in the face of the rapidly increasing database, the phenomenon of "rich data, lack of knowledge" appears.

**Keywords:** Computer-Aided Clustering Analysis, Short-Term Interactive Data, Industry Microblog Marketing Effect, Quantum Evolutionary Game Algorithm

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## 1. INTRODUCTION

In 1959, American scholars Lcdley et al. introduced mathematical models into clinical medicine for the first time, and proposed a computer-aided diagnosis (CAD) mathematical model, creating a precedent for CAD. At one time, people had high expectations for CAD, hoping to realize automated diagnosis with the help of computers [1]. From the launch of Sina Weibo in August 2009 to the beginning of 2011, the microblogging services of the four major portals have gradually matured, and the number of Weibo users in China has exceeded 200 million. The widespread use of Weibo in marketing is inseparable from the characteristics of Weibo itself [2].

Microblogging bridges the gap between blogs and instant messaging [3], enabling users' opinions to spread rapidly and information dissemination more effectively [4]. At the same time, Weibo also has low threshold and wide influence [5], which makes it easier to form a huge user group. The huge number of Weibo users makes Weibo an emerging marketing channel that enterprises cannot ignore, and how to conduct marketing and expand corporate brand influence through Weibo has become a hot topic at the forefront. Attribute reduction is an important part of rough set theory research, which refers to deleting irrelevant and redundant attributes in the decision table under the condition that the data classification ability in the decision table remains unchanged [6], and selecting the minimum attribute set, so that the knowledge representation in the decision table can be simplified and Without losing its important information [7-9].

Combined with the existing domestic and foreign literature on the research on microblog and microblog marketing, using the theory of consumer behavior, relationship marketing theory and interaction theory [8], it defines the related concepts of microblog interaction characteristics and relationship quality. Based on the definition of the concept, this paper analyzes the

relationship and interaction mechanism of Weibo marketing [9]. After researching the relevant references, it is concluded that the residents' health records are the normative records of the process of recording residents' physical and mental health status, and are in the whole life process of residents [10], with personal health as the core, adopting an information-based multi-channel method to dynamically collect personal related health data, and to meet the information resource platform of residents' personal health management and their own needs.

At present, the main forces of Weibo in the Chinese market are Sina Weibo, Tencent Weibo, Sohu Weibo and Netease Weibo. Time [11]. It can be said that China's corporate microblog marketing is still in a relatively primary stage of development, and related theoretical research, especially the theoretical research on the effect analysis of corporate microblog marketing, is still in the process of groping [12]. The spectrum allocation in cognitive radio mainly refers to Spectrum is allocated to one or more designated nodes according to the number of nodes that need to access the system and their service requirements.

The spectrum allocation in cognitive radio has many common characteristics with the spectrum allocation of other communication systems [13]. However, due to the characteristics of the cognitive radio itself borrowing the spectrum of authorized users, the algorithms such as Lemke-Howson based on the linear programming simplex solution are able to cope with the problem. A certain scale of Nash equilibrium is solved, and it has the ability to solve pure strategy and mixed strategy at the same time [14], but the calculation steps are quite complicated. The most important thing is that it is difficult to realize parallel computing, and the maximum utilization efficiency of computing resources is not high. Currently, we have entered the era of data [15].

Since about 2000, words such as "big data" and "data explosion" have become popular words in today's technology

field. The Internet Data Center in the United States has been monitoring the amount of Internet data. They pointed out that the data on the Internet is increasing at an annual rate of about 50%. Therefore, the total amount of data will double every two years. The data above the world is only generated in recent years [16].

However, the green building evaluation system is mainly aimed at above-ground buildings and their auxiliary parts. Due to the particularity and complexity of underground space, these evaluation and design indicators cannot be directly used in the green design and evaluation of underground space, such as underground space [17]. Compared with the above-ground building itself, it satisfies the index of land saving. For example, in the energy saving of above-ground buildings, in addition to considering the material of the envelope structure, the area ratio of the window and wall should also be considered.

## 2. THE PROPOSED METHODOLOGY

### 2.1 The Quantum Evolutionary Game Algorithm

Co-evolution Algorithm (CEA) has become a hotspot in intelligent evolutionary algorithm research by simulating and revealing co-evolutionary phenomena and processes of multiple groups in natural ecosystems [10, 11]. The degree of correlation and mutual division of labor, competition and cooperation, improve their performance through co-evolution, and highlight their strong advantages in solving NP-Hard problems [12, 13]. In the previous section we introduced the theoretical basis of game theory, which is an effective tool to help analyze decision-choice problems.

Cognitive radio, as a new generation of radio that can detect the available spectrum space and change its communication parameters to adapt to the radio environment for communication, involves the selection of strategies in many of its key technologies. The superposition of quantum states refers to more than one The information state is accumulated on the same microscopic particle, which originates from the "coherent superposition" in the wave nature of the microscopic particle. The superposition property of quantum states can be simply described as: if the quantum state of a quantum system can be any one of several different quantum states, then their normalized linear combination can also be its quantum state. This linear combination is called "superposition". Decision tree method (Decision Tree) is the process of classifying data through a series of rules.

Specifically, the mutual information (information gain) in information theory is used to find the attribute field with the largest amount of information in the database, and a node of the decision tree is established. Aiming at the above research problems, this paper studies the cooperative behavior and high efficiency that are more in line with the evolutionary laws of natural populations. According to the evolutionary mechanism of quantum game, according to the minimum attribute evolution reduction model, an equilibrium reduction algorithm of attribute quantum game (AERQG) based on population mixed cooperative alliance is proposed. The quantum game that has emerged in recent years is an attractive computational model in quantum computing, which simulates the process of game theory in a quantum way. In classical game theory, game participants are often required to be completely rational or even super-rational.

### 2.2 The Industry Weibo Marketing Effect and Number of Fans

As the five stages of AIDMA show a gradual decrease, the number of customers who eventually form real consumption through a large number of marketing activities is always a small number, which reveals that the effect of traditional corporate marketing activities tends to decline naturally over time, and the real marketing conversion rate is not high. This theory is generally recognized by the advertising and marketing industries. In the research on evaluating the effect of Weibo marketing, it is mainly divided into three categories: one, mainly for the evaluation indicators; One is to carry out quantitative evaluation; the third is to analyze and evaluate the methods of Weibo marketing.

As a new form of social media, Weibo is a new form of social media, and the research on the evaluation of social media marketing has laid the foundation for the evaluation of Weibo's marketing effect. Carrying out promotional activities is a commercial function of Weibo that many companies easily think of. If there are many target audiences of enterprises on Weibo, discounts, lottery draws, and free delivery can be put into Weibo. In Weibo, publishing this kind of information is not only low cost, but also can make good use of its sharing mechanism. The research on clustering algorithm mainly starts from two aspects: First, regarding the determination of the value, through the above analysis and research, The determination of the initial cluster center value has a profound impact on the entire clustering process and the final clustering result, but it is difficult to determine the value directly or at one time in practical applications.

This reveals that in the Internet era, after companies shift the focus of their marketing activities from enterprise-centric to consumer-centric, the marketing effect of enterprises is no longer a purely natural decline trend over time, but there is a natural decline trend, and because of Consumer's search. Therefore, the number of forwarding and commenting on microblogs of corporate activities can be used as a measure of activity coverage. In terms of the popularity of dissemination, the user's attitude towards the company's microblog can reflect the influence of the company's microblog [12], and the user's attitude towards the company's microblog or microblog activities can be shown from the user's comments. The layer evolution tree is an alliance model that integrates competition and cooperation and mixed co-evolution. The structure of the tree will start from an initial "fat tree", adjust layer by layer to a "thin tree", and eventually form a slave tree. A positive-order tree that increments from the root to each subtree node.

### 2.3 The Computer Aided Cluster Analysis of Short-Term Interaction Data

At present, in data mining algorithms, clustering plays an extremely important role in discovering data distribution and existing patterns in large data sets. How to improve and use traditional clustering algorithms to find useful information in large data sets has become increasingly more people's attention. The AISAS model simply and intuitively reflects the reality of corporate marketing in the Internet age, and is widely used in business practices.

Ritsuya[8] believes that the AISAS model has an important influence on the development of new media strategies of advertising companies, and suggests that advertising, marketing, public relations and other industries should speed up media innovation strategies. The decision-making unit DMU is defined as the microblog marketing activities of

major companies. Each DMU has 3 input variables:  $X =$  (prize value, tweet frequency, reply volume), 3 output variables:  $Y =$  (number of retweets, comments) number, the proportion of positive and negative reviews). The above comparison and exchange operations are carried out from the bottom of the tree to the top of the tree in a recursive manner in each divided evolutionary subtree. The fitness of the root node of each evolutionary subtree is always smaller than the fitness of its corresponding child nodes; the parallel implementation of the Nash equilibrium algorithm in this paper is largely beneficial to the parallelization of the basic operation module, and the large-scale application of matrix operations is also an algorithm Guarantee of efficient operation.

With the support of multi-GPU cluster technology, this paper further realizes such as matrix transposition. Clustering of high-dimensional data has always been a difficult point in clustering problems. The dataset has the property that it belongs to higher dimensional data. The algorithm also achieved good clustering results on this data set. Each index value is the highest among the three algorithms, and the recall rate is nearly a percentage point higher than that of the graph-based quantum game clustering algorithm, indicating that the algorithm in this paper is dealing with It has obvious advantages when dealing with high-dimensional data.

### 3. CONCLUSIONS

The purpose of this study is to explore how the number of followers plays an influential role in the short-term marketing process of corporate microblogs. By establishing a short-term interaction model between the marketing effect of corporate microblogs and the number of followers, the scope of application and economic significance of the model are discussed, and then combined with data envelopment analysis (DEA) method establishes an evaluation model for the marketing effect of corporate microblog activities, and evaluates the marketing effects of corporate microblog activities in a quantitative way. Through the empirical research on the official microblog of S enterprise, the microblog marketing activities of an enterprise microblog in different periods are analyzed, and the rationality and feasibility of the index system and model are verified.

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# Intelligent Evaluation System of Fashion Net Red E-Commerce Marketing Based on Multi-Dimensional Visual Saliency Algorithm

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**Abstract:**Based on the central neighborhood structure in the spatio-temporal domain, this paper uses the incremental information under distortion-limited coding to establish a computational model of visual saliency, that is, the length of incremental coding is regarded as a measure of visual saliency. The marketing method of "Internet celebrity + Taobao" studied in this article, Taobao will also vigorously build a "talent plan" in 2016. Under this circumstance, exploring the marketing method of "Internet celebrity + Taobao" has become the focus of people's attention, this article starts with the concept of Internet celebrity. And classify the marketing methods of "fashion Internet celebrity" e-commerce, through the analysis of the main marketing methods to grasp the current marketing characteristics of "fashion Internet celebrity" e-commerce, fully grasp the fashion network red e-commerce marketing model.

**Keywords:** Intelligent Evaluation System, Fashion Net Red, E-Commerce Marketing, Multi-Dimensional Visual Saliency

## 1. INTRODUCTION

The definition of Internet celebrity is now constantly broad, and Internet celebrity is an Internet celebrity. They come from different classes, different industries, and different backgrounds [1]. The early Internet celebrities refer to those ordinary people who gain the attention of the Internet masses by virtue of their own talents, and have a fan group who follows the supporters and displays themselves through the Internet platform. 2015 Internet Almost everyone is familiar with the word "red" [2]. The popular Weibo fashionista "Sydney", the national husband Wang Sicong's girlfriend, once attracted the attention of the public. The famous movie star Aaron Kwok shared intimate photos with the Internet celebrity Fang Yuan. Internet celebrities have attracted people's attention, so what are the characteristics of these Internet celebrities? How do they use marketing methods to realize the realization of fans? [3]

However, in the vast sea of digital information, the ability of the human visual system to process information appears insufficient. How to let the computer help humans to extract valuable visual information from the numerous pictures and videos has become an urgent problem to be solved. Most people do not clearly recognize the fact that cognition of the biological visual system is not a passive process of reception, but a process of active selection [4], analysis, and re-selection. This continuous selection process is called the selective attention mechanism of the biological visual system, that is, visual saliency. Further, this selection process has two manifestations: inner (covert) and outer (overt) [5].

The term "net red" has not been around for a long time, but its development can be traced back to the beginning of the development of the Internet [6]. From online writers active in forums, communities, BBS, etc., to Sister Furong, Rogue Yan, Mu Zimei, etc. who pursued the "eyeball effect", to the new generation of Internet celebrities represented by papi sauce in the self-media period, until Nowadays [7], more and more celebrities in the traditional sense are further shaping and consolidating their own image and popularity through the Internet. There are quite a few, but most of the studies focus

on a certain network marketing phenomenon, lacking a more systematic and comprehensive "Internet +" marketing model theory [8]. The image visual saliency detection algorithm introduces visual characteristics in the process of analyzing image content, which greatly improves the computer's understanding of the image content and promotes the development of image processing technology [9].

Among various image processing technologies, the computer is not concerned with all the content of the image. The "Internet celebrity economy" was first proposed by Zhang Yong of Alibaba [10]. In short, it means that Internet celebrities drive economic benefits. The Internet celebrity economy is not the economic effect produced by the Internet celebrity, but the entire operation team behind the Internet celebrity, which is based on the Internet. However, it has a certain appeal in the cyberspace [11]. They claim that they use their personal vision, taste and experience to dominate the fan base, relying on the targeted marketing of the huge fan base, so as to convert fans into purchasing power. "The Internet celebrity economy of fashionistas was born in this way, while the public was still amazed by their business model. Visual saliency detection is to automatically detect the salient information that is of interest to humans through the constructed model [12].

Image saliency detection can detect more salient target areas or gaze points in the image, and in the processing of some visual tasks, it can guide the computer to pay more attention to the salient information in the image. The so-called attention selection mechanism, also known as visual saliency [13], that is, the process of selecting a specific region of interest from a large amount of information in the spatiotemporal domain. Although unnoticed most of the time, this ability is a critical and important step in the information processing of biological visual systems, enabling the visual system to deal with large amounts of redundancy at a small cost [14].

From the perspective of the "Internet celebrity" phenomenon itself, we will sort out its development context and analyze the existing problems. The development stages of "Internet celebrities" are divided into text era, graphic era and

broadband era [15]. Content analysis method is an objective, systematic and quantitative research method for dissemination content. Use quantitative data to perform quantitative analysis and make inferences about facts and conclusions. It includes establishing research objectives and determining the overall content of the research [16].

## 2. THE PROPOSED METHODOLOGY

### 2.1 The Multidimensional Visual Saliency Algorithm

In the image frequency domain, the peaks of the magnitude spectrum correspond to repetitive parts in the image [25]. Therefore, Gaussian smoothing of the entire log-magnitude spectrum suppresses the repetitive parts, which attenuates the background information. However, many salient regions are also repeated patterns. Here, the KL distance is generally used as a measure of the distance between the two density functions, so that the above process is transformed into an optimization problem solution, and then 1D- is obtained. At this time, the 1D-row vector can be regarded as a linear filter acting on the image block.

They can better detect image edges. The operator is an optimal edge detection operator obtained by analyzing and summarizing the previous edge detection algorithms. It has good anti-noise performance and generates relatively good boundaries. Of course, many existing image visual saliency detection algorithms do not directly use edge features, but the saliency maps obtained by most detection algorithms have high saliency at the edges of objects. In order to analyze the amplitude spectrum information intuitively, we construct the one-dimensional signals  $ft1()$  and  $ft2()$ , and draw their waveforms and the corresponding logarithmic amplitude spectrum, as shown in Figure 3.1. The first line is the original periodic signal  $ft1()$ ; the second line is the logarithmic amplitude spectrum after Fourier transform of the signal  $ft1()$  (for better display effect, to avoid negative values in the logarithmic spectrum, in the original amplitude Add 1 to the spectrum, such as formula (3.1): The saliency model based on conditional information entropy proposed in the previous section is difficult to solve directly due to the high dimension. In this section, the paper discusses efficient algorithms for solving this model under different prior assumptions.

In fact, for the optimization problem of (3-6), there can be two different solutions: Muwen focuses on the graph-based segmentation algorithm. Because the graph-based segmentation algorithm has the advantages of fast segmentation and accurate segmentation, the graph-based segmentation algorithm is used in many applications. The graph-based segmentation algorithm studied in this paper is based on the segmentation algorithm proposed by et al. Therefore, the three peaks of  $1(w)$  are caused by the repeating pattern of  $ft1()$ . Actually, the three prominent peaks in  $2(w)$  are also caused by repetitive low-frequency signals (non-salient segment signals), while the two local peaks in  $2(w)$  (inside the red box) are caused by repetitive high-frequency signals (significant segment signal). The eye tracking dataset gives the data (points) for human eye tracking. According to the saliency map  $Sx()$  obtained by the algorithm, the ROC curve can be drawn by the hit rate (HR) and false alarm rate (FAR), and the algorithm performance can be measured by calculating the area under the ROC curve (AuC). The saliency detection algorithm is designed to be able to detect salient regions. For one-dimensional signals, the purpose is to detect significant segment signals and suppress non-significant segment signals. The higher the average amplitude of the

significant segment, the better the detection effect; the lower the average amplitude of the non-salient segment, the better the detection effect.

### 2.2 The Fashion Influencer and E-Commerce Marketing

At present, Internet celebrity marketing mainly focuses on entertaining the public. With the improvement of the Internet system, there are already many mature and relatively complete Internet celebrity promotion teams, but there are some bad orientations. Compared with hard advertising, Internet soft text marketing is It is more inclined to emotional guidance rather than directly saying that their products are worth buying. During the guidance process, the advertisements are invisibly hidden in the storyline and self-experience, and the audience's psychology and emotions are influenced by highly instructive texts. Energy is the focus of communication, and the choice of emotional energy is the essence of people's communication [10].

Network subcultural communities have a strong sense of group identity. For the "Internet celebrity" group, in order to maintain the stability of their fan groups, they have higher requirements in terms of emotional investment, emotional feedback and emotional regulation. In order to further dig into the core category of the Xiaomi case, in the process of comparing the initial materials, concepts, and categories, the main story line of the Xiaomi case is refined through language description. The main story line of this chapter is a true reflection of the initial materials of the Xiaomi case, and it is a refinement of the core part of the Xiaomi case. Selective decoding has an important impact on the theoretical construction of this study, and is an important part of the case study process using grounded theory. The reason why video marketing can be favored by fans is that it is highly dynamic and intuitive, and can allow fans and consumers to more intuitively find problems and improve trust in the process of design, production, and delivery.

Compared with other traditional media such as newspapers and TV, advertisement marketing uses We-media such as Weibo as the carrier of dissemination, and the cost of advertisement is very low. No matter which traditional media is used, high advertising costs are required, and as people gradually disengage from traditional media, or rogue youths tamper with Edwardian aristocratic dressing styles and adopt the iconic duck-butt hairstyle, use wandering Defend your own living space by creating chaos in the streets. In contrast to the stylistic characteristics used to express group differentiation in such subcultures, style may also be used only as a description of subculture types.

### 2.3 The Intelligent Evaluation System of E-Commerce Marketing

In the experience interactive marketing, there will be a sneaky exchange of experience objects. Adding too many modifications to the good conditions of the Internet celebrity, such as image filters and PS retouching, will cause many fans to buy back things that are not It is suitable for a large number of fans. At the same time, Sina Weibo will also cooperate with "fashion influencers" and their companies, and they will use official resources to promote and cultivate outstanding influencers to continue to develop fashion influencers. Fan economy, improve the efficiency of its realization. It's not just "fashion influencers" who are marketing themselves.

The visual saliency detection model based on the frequency domain generally transforms the image into the frequency



domain, then extracts the information of the salient area by processing the frequency domain information, and finally restores the output saliency map through inverse transformation. It is not difficult to find that when  $e_l$  decreases, the model tends to a low distortion threshold, and  $S_x()$  tends to be equal everywhere; on the contrary, when  $e_l$  increases, the model tends to a high distortion threshold, and the difference of  $S_x()$  increases. It can be seen that generally speaking, increasing  $e_l$  can bring better discriminative characteristics. Therefore, transform as much original image information into the frequency domain as possible to extract more image information and perform better saliency detection. This paper adopts the paradigm model often used in academia to sort out the complex relationship between the nine categories obtained in the previous step. The main axis decoding is aimed at forming the main category, rather than constructing the theoretical model of this paper.

Based on the model model, this paper organizes and summarizes the causal conditions, phenomena, contexts, mediating conditions, action (interaction) strategies and results. : Gravity calibration model will be called the method of operation and detection. The gravitational model is difficult to obtain visual focus through iteration. Feedback is an important part of the marketing model. Most of the improvements in production of "Internet celebrity + Taobao" come from feedback from fans and consumers, and different marketing plans are formulated through different feedbacks. In the hearts of fans, they are no different from stars, and this kind of star halo is fun for the Internet celebrity. At the same time, this star halo makes her products have a wider market, and it is possible for one of their Weibo to be new. Drain millions of store transaction records, so the advantage of this kind of self-marketing lies in this.

### 3. CONCLUSIONS

"Internet celebrity + Taobao" can also become the Internet economy, then the rapid changes of the Internet will be the characteristics of its marketing methods, otherwise it will be eliminated by a steady stream of new forms, and the Internet celebrity economy can also become a "fan economy". In order to The saliency detection algorithm in the frequency domain is improved to detect the integrity of the salient region, and the saliency detection algorithm AHFT is proposed. The AHFT algorithm uses Gaussian smoothing to deal with the problem of high amplitude caused by background information.

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# On Promoting the Sustainable Development of the Tourism Industry by Deeply Digging Cultural Connotation

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**Abstract:** The sustainable development of tourism industry is one of the central topics that people pay attention to in the field of tourism management. Under the guidance of the scientific outlook on development, this article analyzes the status and role of culture in the sustainable development of the tourism industry, puts forward new understandings, deeply explores the connotation of tourism culture, and improves the quality of the tourism industry, to build new advantages in the development of the tourism industry and realize the sustainable development of the tourism industry. Under the guidance of the concept of development, the status and role of culture in the sustainable development of the tourism industry are proposed to update the understanding, deeply explore the cultural connotation of tourism, and improve the quality of the tourism industry, to build new advantages in the development of the tourism industry and realize the sustainable development of the tourism industry.

**Keywords:** Sustainable Development, Tourism Industry, Cultural Connotation

## 1. INTRODUCTION

With the deepening of reform and opening, my country's tourism industry has developed rapidly. After reflecting on the traditional concept of development, people realize that economic growth is only a means, and economic development is the goal. The sustainable development of tourism industry has become the central issue of general concern. The third plenary session of the sixteenth central committee of the Communist Party of China put forward the scientific concept of development, pointing out a bright road for the future development of tourism. To implement the scientific concept of development in the tourism industry, it is necessary to deeply explore the connotation of tourism culture, to build new advantages in the development of the tourism industry and realize the comprehensive, coordinated, and sustainable development of the tourism industry.

Culture is a large category, including the sum of material and spiritual wealth created in the process of human practice. People's multi-angle and multi-faceted culture also shows that the culture is rich and broad. Culture can be subdivided from different perspectives, and tourism culture is one of them. Tourism is an economic industry with strong cultural characteristics, and culture is the soul of tourism. The cultural essential characteristics of tourism must give priority to the development of tourism culture in the process of developing tourism and use advanced culture to lead the sustainable development of tourism. Only by paying full attention to the cultural nature of tourism products, excavating its cultural connotation, displaying cultural characteristics, and improving cultural taste and cultural content can tourists be attracted. To bring about the vigorous development of the tourism industry.

Due to the wide coverage of culture, some scholars pointed out that culture is naturally a vague concept, its content is both concrete and abstract, "fuzzy culture and cultural ambiguity make us sometimes have to understand and study culture at a loss." To understand and master the connotation of tourism culture, it must be categorized and advanced layer by layer. Culture is the product created by the practice of various ethnic

groups in various regions in the historical development, and there are obvious differences. Under the current trend of global economic integration, culture, as a dynamic and open system that constantly exchanges materials and information, constantly realizes self-maintenance and self-renewal in the opposition between stability and development. In the development process of culture advancing with the times, people occupy a central position.

It is necessary to put people first, and objectively view the cultural exchange brought about by the flow of tourist groups. The cultural differences between the source and destination of tourists cannot explain whether the cultures of the two places are better or worse. Tourists walk across the travel stream and learn about the culture of the tourist destination. At the same time, it also brings the culture of its own region to the residents of the tourist destination, disseminating and exchanging the cultures of the two places. At the same time, it is important to understand the country. Tourists, tourism is a weak cage. Leici attaches great importance to the development and protection of cultural resources, which undoubtedly has a positive effect on the development of culture. However, the research results of many anthropologists and sociologists have shown that such tourists are too persistent to visit, and the purpose of tourism is the negative part, the most obvious one is to make the local culture abnormal. Commercialization, this type of change is fatal to destinations that attract tourists, and it will make these destinations lose their attractiveness.

## 2. THE PROPOSED METHODOLOGY

### 2.1 The Status and Function of Culture in the Sustainable Development of Tourism Industry

The loss of the tourism industry and even the basis for maintaining its basic survival. Tourism is an economic industry with strong cultural characteristics, and culture is the soul of tourism. The cultural essential characteristics of tourism must give priority to the development of tourism

culture in the process of developing tourism and use advanced culture to lead the sustainable development of tourism. Modern tourism is a kind of advanced consumption implemented by tourists to meet their own spiritual and cultural needs. The greatest gains for tourists are spiritual pleasure and a good memory with endless aftertaste. Therefore, there is no tourism without culture, tourism products and tourism industry. Only by paying full attention to the cultural nature of tourism products, excavating its cultural connotation, displaying cultural characteristics, and improving cultural taste and cultural content can it attract tourists and bring about the vigorous development of tourism. The competition in the tourism industry is essentially a cultural competition, and cultural factors become the decisive factor in the development of tourism economy.

In tourism activities, the material needs of tourists are relatively low-level needs, which are easy to meet; but their goal is spiritual and cultural needs, which are high-level and complex needs, which are difficult to meet. Since the cultural differences of each region and each nation are often unique to a region or a nation, it is difficult to imitate and copy, and the comparability is low. It is easy to create its own characteristics and brands and form a strong competitiveness in the development of tourism. China's tourism started relatively late, and under the specific conditions, the development idea of "stimulating tourism and supporting tourism" once played a positive role, making people's understanding of tourism from foreign affairs reception to industry gradually clear, and some projects in a certain period of time, good economic benefits have been achieved, but this kind of steady-effect type shocks, antelope silkworms seek economic benefits, and the damage caused to the natural resources and social and cultural resources of tourist destinations is difficult to measure with economic figures. The scientific concept of development proposes that the development of tourism products will continue to develop, and that tourism production should be shifted from quantity to quality and benefit, and to develop in depth by exploring the cultural connotation of tourism and increasing the added value of production. The competition in the tourism industry is essentially a cultural competition, and cultural factors become the decisive factor in the development of tourism economy.

In tourism activities, the material needs of tourists are relatively low-level needs, which are easy to meet; but their goal is spiritual and cultural needs, which are high-level and complex needs, which are difficult to meet. Since the cultural differences of various regions and nationalities are often unique to a region or a nation, it is difficult to imitate and copy, and the comparability is low. It is easy to create its own characteristics and brands and form a strong competitiveness in the development of tourism. The unique information of the nation and region contained in the culture is often irreproducible and irreplaceable. Highlighting the cultural characteristics of tourism to form inter-regional cultural characteristics is the key to cultivating the core competitiveness of the tourism economy. With the gradual development of tourism development, culture is like an invisible hand dominating tourism economic activity. Only through cultural innovation can the tourism economy be kept alive.

## 2.2 The Connotation Construction of Tourism Culture Promotes the Sustainable Development of Tourism

Accelerate the training of talents and lay a solid foundation for the development of the tourism industry. For a long time, my country's tourism major has been placed in the category of economics, tourism culture is not an independent discipline, and insufficient attention has been paid to the improvement of the cultural quality of tourism talents. In fact, tourism product design, resource development and planning, and tourism services are all based on culture, but the cultural level of tourism practitioners is relatively low, and their awareness of culture is not enough to help tourists with different cultural backgrounds understand tourism. The cultural connotation of products and tourism activities can only stay at the superficial level of sightseeing and cannot meet the development requirements of tourism. Therefore, it is necessary to speed up the training of tourism talents, so that they must be good waiters and explainers, and give tourists a full range of material and spiritual enjoyment through every word and deed of every tourism worker and enhance tourism culture grade.

Tunnel if my country's tourism legal system gradually builds up, promote the standardization of the tourism market environment. However, vicious competition in the tourism industry, false advertisements, contract fraud and other short-term problems are still invading the tourism economy and seriously threatening the long-term development of the tourism industry. Create an honest and fair business environment, improve the image of the tourism industry, govern tourism according to law and improve the construction of tourism laws and regulations. Can regulate the market to a certain extent. The more important thing is to rely on the self-discipline of tourism management enterprises and advocate honest and law-abiding management by building a multi-industry culture of tourism management enterprises. The tourism industry chain is long, and it is a labor-intensive industry. To achieve sustainable tourism development, we must speed up personnel training, improve the quality of laborers, and give full play to the advantages of our country's rich human resources.

For a long time, my country's tourism professional education has been placed in the category of economics, tourism culture is not an independent discipline, and insufficient attention has been paid to the improvement of the cultural quality of tourism talents. In fact, tourism product design, resource development and planning, and tourism services are all based on culture, but the cultural level of tourism practitioners is relatively low, the awareness of culture is not enough, and the "whitening" link of tourism cultural connotation is missing, so it is impossible to help tourists with different cultural backgrounds understand the cultural connotation of tourism products, tourism activities can only stay at the superficial level of sightseeing, and cannot meet the development requirements of modern tourism. Combined with the understanding of culture in the tourism industry, tourism culture is not a simple superposition of tourism and culture. Interests, behaviors, thoughts and beliefs and other cultural subject areas; it also involves tourism media culture such as service culture, commodity culture, management culture, tour guide culture, policies, and regulations."

Therefore, it is necessary to speed up the training of tourism talents, gradually shift from pure productive investment to human capital investment, improve the professional quality of tourism practitioners, and improve their understanding of the

history, culture, and folk customs of the environment. To be a good commentator, through the words and deeds of every tourism worker, give tourists a full range of material and spiritual enjoyment, and enhance the taste of tourism culture.

### 3. CONCLUSION

The tourism industry is an industry with four major functions of economy, culture, society, and environment. However, the phenomenon of blindly pursuing economic benefits and ignoring cultural and other functions exists in many places to varying degrees. The moderate development and sustainable use of tourism resources requires increased Industrial quality, integration of cultural elements, brand operation. Under the guidance of the scientific outlook on development, we should study spiritual culture, develop material culture, create institutional culture and management culture, promote educational culture, involve the government and all parties related to the tourism industry, deeply explore the connotation of tourism culture, and actively practice it to promote tourism industry. To mature, sustainable and healthy development. Under the guidance of the scientific outlook on development, we should study spiritual culture, develop material culture, create institutional culture and management culture, promote educational culture, involve the government and all parties related to the tourism industry, deeply explore the connotation of tourism culture, and actively practice it to promote tourism industry. To mature, sustainable and healthy development.

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# Research on the Dilemma and Countermeasures of Comprehensive Budget Management of Cultural Tourism Enterprises

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**Abstract:** With the rapid development of the economy, the business scale of enterprises continues to expand. Objectively, it is necessary to carry out efficient management of business operations. In addition, with the severe international and domestic trade situation, the competition among enterprises is becoming increasingly fierce. Comprehensive budget management is an effective management method, comprehensive budget management is getting more and more attention from the management of enterprises. Comprehensive budget management is to use the budget to integrate various resources of the enterprise, improve the management level of the enterprise, and promote the realization of the strategic goals of the enterprise; this scientific, efficient, and systematic management method has been basically recognized by most enterprises and actively used in production. However, there are still many problems and difficulties in the actual implementation process. This paper mainly analyzes the predicament of comprehensive budget management and the problems that often appear in the implementation and puts forward corresponding improvement countermeasures and solutions.

**Keywords:** Dilemma and Countermeasures, Comprehensive Budget, Cultural Tourism Enterprises

## 1. INTRODUCTION

Comprehensive budget management is to use the budget to integrate various resources of the enterprise, which can assist the enterprise in planning, coordination, communication, control, and evaluation, and reasonably promote the realization of the enterprise's business objectives and strategic planning. With the continuous escalation of international trade frictions and the increasingly fierce competition between international and domestic enterprises, how to integrate the concept of comprehensive budget management into enterprise management work, improve the internal management level of enterprises, and reduce the operating risks of enterprises, comprehensive budget management becomes more and more important. First, comprehensive budget management fully and reasonably refines and quantifies the development strategy of the enterprise, makes the strategic goal based on feasibility and sustainable development, provides guarantee for the effective implementation of the strategic goal, and reduces the business risk and risk of the enterprise financial risk.

Secondly, comprehensive budget management makes a reasonable prediction of the future development direction of the enterprise, integrates and unifies the responsibilities, rights, and benefits of each department, standardizes the business process of the enterprise, makes the decision-making plan more effective and reasonable, and prevents financial risks for the enterprise and realizes effective operation. Ultimately realize the maximization of enterprise value and provide guarantee. Finally, enterprise performance evaluation needs comprehensive budget management to provide an important basis. Comprehensive budget management decomposes strategic goals into various units and individuals, optimizes the allocation of enterprise resources and funds, improves the input-output ratio, assigns responsibilities to people, and quantifies people, thereby motivating employees, improving work quality and efficiency, and realizing a win-win situation for enterprises and employees. The preparation of a comprehensive budget is all-round and multi-dimensional. It

is an understanding of the comprehensive budget from the perspective of corporate value orientation and business activities. statement and cash flow statement, etc.

But most companies only pay attention to the budget of sales, production, labor, manufacturing costs, period expenses and other operating profit and loss items, and prepare income statements. There are few cases of preparing balance sheets and cash flow statements, and even if there are hastily compiled, lacking authenticity and accuracy. The investment budget is packaged and compiled, lacking the feasibility analysis of the system in the early stage, and the lack of strategic forward-looking. The strategy of the enterprise determines the general direction of future development. If the strategy deviates, it is difficult to achieve the goal of the enterprise only by adjusting tactics. Therefore, after the enterprise formulates the development strategy based on the vision, each department should formulate the departmental strategy according to the overall strategy of the enterprise.

When preparing the budget, the enterprise did not draw up the enterprise's short-term business plan and annual plan according to the enterprise's strategic plan, did not conduct an in-depth analysis of the enterprise's effective resources before preparation, did not conduct sufficient market research, and did not based on the enterprise's internal and external factors. Formulate the production and sales plan of the enterprise, and do not match the material, labor, and expenses of the enterprise according to the production and sales plan of the enterprise, only consider the short-term plan at the time of budget preparation and lack a comprehensive understanding of the overall strategic goals of the enterprise, resulting in the budget indicator system does not meet the strategic objectives of the enterprise.

## 2. THE PROPOSED METHODOLOGY

### 2.1 Problems Existing in Comprehensive Budget Management of Enterprises

An important link in the comprehensive budget management of enterprises is the comprehensive budget evaluation. Perfecting and reasonable evaluation mechanism will help enterprises create a fair and competitive environment. Comprehensive budget evaluation is the inspection of the budget execution process and results, discovering problems in time, correcting deviations, affirming achievements and advanced experience, and conducting fair evaluation, rewards and punishments for employees based on this, and continuously stimulating employees' work enthusiasm and self-motivation. However, in practice, the evaluation mechanism of many enterprises does not include budget management indicators, or even if the evaluation mechanism is included, the budget indicators are not decomposed in detail, the respective responsibilities of each department and personnel are not clear, and there is a lack of tracking and implementation of budget objectives. Feedback, once there is a deviation in execution, the responsibility cannot be implemented. Establishing the independent investment authority of the subordinate company within a certain range can not only stimulate the operating vitality of the subordinate company, but also improve the efficiency of asset operation, and then increase the emphasis of the subordinate unit on investment.

At the same time as decentralization, we should also pay attention to the control of investment. In the comprehensive budget management, a statement of the situation should be submitted. For newly added investment projects, a preliminary feasibility analysis report should be prepared item by item. For the investment where the specific plan cannot be determined for the time being, the investment logic, profit model, risk control ideas and expected plans should be explained. In this way, it can not only encourage attention to investment budget, but also understand and track the situation of investment projects.

In view of the weak budget management awareness of enterprise employees, enterprises first need to strengthen financial management, especially the publicity of budget management, and carry out extensive employee publicity on the significance and positive role of budget management to contemporary enterprises. The publicity forms mainly include corporate newspapers and magazines, corporate website and corporate bulletin boards, etc., through extensive publicity, improve the budget management awareness of corporate employees and lay the foundation for the implementation of subsequent budget work; secondly, regularly invite external financial management experts to give lectures to the corporate the lecturers teach the adaptability of budget management and the current market environment, etc., and teach the basic skills and positive significance of budget management to the grassroots employees of enterprises. Now most enterprises do not have professionals in budget management or there are not many people with knowledge of budget management. The budget preparation personnel at each executive level of the enterprise are concurrently held by personnel from various departments, and the enterprise has little training for the budget preparation personnel, or the training effect of the budget preparation personnel is not good.

Based on the complex and changeable market environment, some enterprises still use the traditional budgeting methods in the past, which budget indicators are not drawn up according

to the actual situation of the enterprise, and which budgeting methods are adopted, which leads to the fact that the prepared budget indicators do not match the actual situation of the enterprise, and the budget difference is relatively large, resulting in the waste of corporate resources, and the failure of corporate overall budget management. First, the accuracy of budget preparation is not high, relying too much on financial data, inaccurately grasping the ever-changing market information, not responding in a timely manner, and unable to reasonably predict the actual future development direction of the enterprise, making the budget lose its original reference value.

### 2.2 Countermeasures to Improve Enterprise's Overall Budget Management Ability

A considerable number of enterprises still "emphasize establishment and despise management and control". They only make budgets regardless of the implementation results, lack follow-up feedback during the implementation process, and budget rigidity and flexibility are unbalanced, making budget data unable to guide business operations and management, resulting in reduced overall budget management. Budget management is useless. Build a modern enterprise financial ecosystem, centering on the three major cycles of business, information, and management, establish an upper-lower linkage budget mechanism for decision-making and execution feedback to achieve a balance between resource allocation and performance appraisal; integrate and transform the existing system to enable comprehensive budget management. Self-iteration and self-evolution to improve the automation level of financial management. First of all, improve the ability of budget review, comprehensively sort out the division of labor and operation process of each functional department in the budget review process, transform the existing system, open up the work nodes of each subordinate enterprise and each budget function department of the group, and establish mutual trust and mutual transparency Instant feedback mechanism to ensure that there are no blind spots in budget review and that budget preparation is fully transparent.

At the same time, in the stage of budget preparation, the preparation process is also separated from the strategy, and the strategy is not taken as the primary factor. Senior managers allocate resources during the budget execution process, but the resource allocation only follows the departmental interests, which department can generate more benefits in the short term, then allocate resources to that department, which can quickly improve the overall profitability of the enterprise, because the problem is not examined from the perspective of strategy, it will have a negative impact on the long-term development of the enterprise. According to the business situation and management needs, enterprises should insist on strengthening process control in budget control, highlighting key management, and combining the rigidity of budget execution with the specific problems encountered in the actual budget. Solve specific problems in the implementation of corporate budget.

For exceptions that exceed the budget or exceed the budget, the enterprise's budget approval procedures should be strictly implemented. After the annual budget is approved, it will not be adjusted under normal circumstances; however, when there are major changes in the internal and external environment of the company's operations or sudden major events, which lead

to major changes in the basic assumptions of budget preparation, the management of the company should promptly and proactively adjust. Adjustment, budget adjustment should not only emphasize budget rigidity, but also avoid the randomness of budget adjustment.

First, in the fierce market competition, if an enterprise wants to achieve sustainable development and successfully maintain its dominant position, it must improve its informatization level. Enterprises should effectively integrate various internal information resources and develop and allocate a budget suitable for themselves in combination with the actual situation of the enterprise. Management system, and real-time monitoring of enterprise budget implementation, timely detection of problems, and correction of deviations; secondly, to improve the level of enterprise budget management, promote the smooth progress of comprehensive budget management, and enhance the ability of budget preparation is the key link and an effective carrier. Strengthen the analysis ability of budget execution, complete budget execution feedback on a regular basis (such as monthly and quarterly), compare the expected completion and actual completion, analyze the reasons for deviations (focus on subjective reasons), and judge the annual budget based on market, policy and industry trends estimated completion status, put forward countermeasures and suggestions. At the same time, increase the intensity of accurate budget assessment and improve the rigid constraints of the group budget.

### 3. CONCLUSION

In short, enterprises should attach great importance to comprehensive budget management, integrate the concept of comprehensive budget management into enterprise management work, and combine the problems existing in the budget management process to find out the reasons for the problems, conduct in-depth analysis, and propose corresponding solutions. Measures to improve the utilization efficiency of various resources of the enterprise, so that the utilization value of various resources of the enterprise can be maximized, continuous optimization and improvement of comprehensive budget management methods and methods are of great significance for enterprises to find their own positioning and achieve sustainable development. Therefore, enterprise managers should correctly understand and pay full attention to the comprehensive budget, led by example, refine the budget, assign responsibilities to individuals, and provide reasonable and effective incentives for budget executors, to truly realize the effective implementation of the comprehensive budget and ultimately realize the long-term development of the enterprise strategic objectives.

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# Discussion on the Integration of Manufacturing Service and Information Technology

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**Abstract:** The integration and interactive development of productive service industry and manufacturing industry is an inevitable result of "service-oriented manufacturing" and "service industry industrialization", and it is also the only way for China to develop high-end manufacturing and modern service industry. This article provides an in-depth explanation of the trend and mechanism of the integration and interaction between the productive service industry and manufacturing industry in China and selects typical cases to analyze the problems in the current integration and development of the productive service industry and manufacturing industry. It also proposes countermeasures and suggestions on how to better promote the interaction and integration of the productive service industry and manufacturing industry.

**Keywords:** Manufacturing Service; Information Technology

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## 1. INTRODUCTION

Due to the interconnected and interdependent nature of various industries in China, no industry can develop independently. The closest connection with the manufacturing industry should be the productive service industry. To truly develop the manufacturing industry, it is necessary to simultaneously carry out the productive service industry, so that the development level of the manufacturing industry and the productive service industry is similar. Any industry with a high or low development level will affect and restrict the development of another industry. Currently, under the goal of achieving a major industrial province, efforts are being made to develop the manufacturing industry to obtain more development space.

With the development of industrialization, the proportion of pure manufacturing in the added value composition of industrial products is becoming lower and higher, while the proportion of service industry, especially modern service industry, is becoming higher and higher. Modern service industry has become the basic content of new industrialization. Without the full development of modern service industry, there can be no new industrialization. The manufacturing industry is the industrial support point for industrialization, which shows that the development of modern service industry and manufacturing industry is closely related.

The mechanism of interaction and development between the two is not mature enough. China is a traditional manufacturing country, and in the initial process of developing the manufacturing industry, there was no supporting service industry for its development. Most of them were mainly government services, and the development time of targeted service industries in the market was relatively short, especially in the financial service industry. The phenomenon of homogenization among productive service enterprises in China is severe, and the competition between them is no longer about the strength and innovation ability of enterprises, but rather the exploration of business capabilities, which seriously restricts the development of the productive service industry towards a high-level direction. In addition, the insufficient driving force of manufacturing on the service industry and the lack of high-end manufacturing have resulted in low added value, which cannot provide strong impetus for the development of the service industry.

With the service-oriented and industrialized manufacturing industries, the boundary between productive services and manufacturing is becoming increasingly blurred. The extension, infiltration, and restructuring of productive services towards manufacturing research, design, logistics, and service processes have formed an integrated functional system of productive services on the manufacturing industry chain. The two gradually merge into one, achieving a state of integration and interaction, and ultimately forming a new industrial system. This section will elaborate on the mechanism of integration and interaction between the two from three perspectives: division of labor, value chain, and industrial upgrading. The current level of development of productive service industry is relatively low compared to other developed provinces. Although the manufacturing industry in this province is relatively advanced, the level of productive service industry has hindered it, leading to difficulties in the development of the manufacturing industry, which cannot continue to develop well, or even stagnate.

## 2. THE PROPOSED METHODOLOGY

### 2.1 Manufacturing service-oriented and information channels

The development level of productive service industry is relatively backward compared to other provinces, making it difficult for the manufacturing industry to obtain the necessary professional talents and match talents with technology, greatly limiting the sustainable development of the manufacturing industry. If we want the manufacturing industry to continue to develop healthily, we must increase efforts to develop corresponding productive service industries, so that the development level of productive service industries is generally consistent with the development level of the manufacturing industry. By allowing the talents provided by productive service industries to adapt to the progress level of the manufacturing industry, the manufacturing industry can develop efficiently, and the integration of productive service industries and manufacturing industry will be easier. At present, our province is facing a golden period of relying on manufacturing as the foundation, accelerating the development of productive information service industry, and promoting the integration of modern service industry and manufacturing industry. To better transform the economic development mode and improve industrial synergy, the



specific implementation should follow the following ideas: one center, two directions, and three permits. The service industry can take advantage of this opportunity to further improve itself, while the manufacturing industry can achieve faster transformation and development driven by better service industries.

The relationship between productive services and manufacturing is complementary, as the former can provide necessary market services according to changes in market and industry development in the process of serving the latter; In the process of development, the manufacturing industry can further expand market demand and drive the development of the entire industrial chain, while the productive service industry is precisely the bridge and link connecting the manufacturing industry chain. At the same time, manufacturing enterprises, based on transaction cost considerations, will continue to divest their internal R&D, design, logistics, accounting and other service functional departments, and reuse market mechanisms to organize division of labor. With the diversification of demand and the pursuit of core competitiveness, specialization has become a strategic choice for enterprises to participate in competition, but also to reduce transaction costs, more and more manufacturing enterprises are turning from merely providing goods or goods and value-added services to providing more abundant and complete goods - service systems, and manufacturing enterprises have been specialized in productive services and incorporated into their own business departments, thus forming a re integration on the basis of re division of labor

To better develop the manufacturing industry, it is necessary to ensure that the progress of the manufacturing industry and the productive service industry is relatively small. Because the development level of the productive service industry is relatively backward compared to other provinces, the government should make every effort to adopt corresponding assistance and development policies and punish the continuous progress of the productive service industry. The government should provide corresponding preferential policies for talent recruitment, to attract talent to join, expand the scale of the productive service industry, and then cultivate higher-level professional talents. Continuous training should be provided to enable professional talents to achieve the goal of keeping up with the times, to meet the demand for technical talents in high-tech enterprises. Manufacturing informatization extends services to the frontend and backend and back end of the business chain through Internet, communication, computer and other informatization means, expanding the service group, expanding the scope of services, and narrowing the distance between enterprises and customers by quickly obtaining customer feedback. Moreover, more and more manufacturing enterprises are no longer simply selling goods, but extending to the function or service of selling goods to enhance the value of products.

## 2.2 Integration Technology of Manufacturing Service and Information Technology

The informatization of the manufacturing industry will show a clear trend of development from the inside out, and the characteristics of outsourcing are becoming increasingly evident, which provides a rare market opportunity for the development of modern service industries. The development of service industries can promote the transformation and upgrading of the manufacturing industry, and at the same time,

the progress of the manufacturing industry will also drive the improvement of the service industry. The transformation of the manufacturing industry will bring more high-value engineering projects with higher technological content. To provide basic service capabilities in this regard, the service industry needs to improve its own capabilities and service levels. From this perspective, the growth of demand in the manufacturing industry has stimulated the development potential of the service industry, which will help improve service standards and levels. Substitution, that is, the productive service industry and the manufacturing industry use the decomposition and reorganization of the original manufacturing value chain to integrate into a new value chain, forming new integrated products. In this case, enterprises can either Product bundling manufacturing products and service products or sell them separately, which is different from symbiotic products.

For example, some large mechanical equipment manufacturers also operate periodic maintenance or repair of equipment in addition to equipment sales, which not only solves customers' worries but also achieves greater utility than selling both separately. It is necessary for the government's supervision and management system to constrain and regulate it, to prevent various problems in the industry during the integration process from being solved without corresponding systems, resulting in a decrease in the credibility of the government. This is very harmful to the integration of the industry. To better promote industry integration, the government should gradually improve the relevant regulatory system for industry integration, so that industry integration can be carried out in an orderly manner in the market. Over time, more and more enterprises will be attracted to promote the true integration of manufacturing and productive service industries.

The important trend in the development of modern manufacturing industry is the collaborative development of industrial clusters based on the industrial chain. In the context of modern industry, it is necessary to rely on advanced information technology and network technology to develop a virtual industrial cluster model, maximize the scale and agglomeration advantages of regional characteristic industrial chains and clusters, break through the geographical and functional limitations of traditional industrial clusters, and achieve collaborative manufacturing and online services of products, through real-time information feedback, enterprises can adjust their strategies in time, optimize the cooperation mode, improve the quality of cooperation, and ultimately enhance their market adaptability.

From the above analysis, it can be found that there is a mutually promoting relationship between the manufacturing industry and the service industry. Therefore, to promote the integration and development of the two in future development, it is necessary to improve the service level of the service industry, improve the establishment of standard systems, and promote the transformation and development of the manufacturing industry to achieve true integration of the two. At the same time, in response to the development of the service industry, we should encourage service innovation, business upgrading, and achieve deep matching with the manufacturing industry. As a result, there is an increasing demand for investment in intermediate services in the production process, which reflects the increasing interaction and integration between the two. It can be said that the transformation and upgrading process of the manufacturing industry is essentially a process of increasing the role of

productive services. On the other hand, in the process of interacting with the manufacturing industry, the productive service industry has also achieved significant development.

### 3. CONCLUSION

From the above analysis, we can clearly see that for Henan Province to achieve true development, it is necessary to link the productive service industry and manufacturing industry together, so that the two can achieve true integration. Subsequently, we introduced the current problems in the promotion of the interaction and integration of manufacturing and productive service industries. It is not only necessary to establish a comprehensive platform for government information, manufacturing and productive service industry information, but also to establish a platform for supply and demand information, cooperation information, and coordination between the two, in order to achieve timely communication and grasp of the supply and demand situation, service requirements, and enhancement of productive service industry functions in the manufacturing service sector. At the same time, in the process of building an information platform, the government should fully provide support in various aspects such as policies, funds, and the establishment of information platform infrastructure.

### 4. ACKNOWLEDGEMENT

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# Effective Practice in Education and Teaching of Exhibition Majors

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**Abstract:** This paper aims to explore the effective practice of education and teaching in the exhibition industry. The education and teaching of exhibition majors is of great significance in cultivating students' professional knowledge, skills, and literacy in the exhibition industry. This study, through comprehensive literature research and the author's teaching experience, clarifies the goals and strategies of exhibition education teaching, and reveals effective practical methods. Among them, the close connection between clearly defined learning objectives and industry practice, diverse teaching methods and evaluation methods, and opportunities for cooperation with the industry are considered key elements in cultivating excellent exhibition professionals. The research results provide educators with reference for guiding teaching plans and training programs to adapt to industry changes and needs.

**Keywords:** Exhibition major; Education and teaching; Effective practice; Evaluation methods; Industry cooperation

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## 1. INTRODUCTION

The exhibition industry, as a rapidly developing global industry, has an increasing demand for professional talents. The exhibition industry is a diverse and interdisciplinary field that covers aspects such as conferences, exhibitions, and event planning. With the development of the global economy and the increase of international exchanges, the exhibition industry has rapidly risen and shown a trend of sustained development. Exhibition activities not only provide a platform for enterprises and institutions to promote products and services, but also promote business cooperation and cultural exchange. With the continuous vigorous development of the exhibition industry, the demand for high-quality, diversified, and specialized talents in the industry is also increasing. The traditional education model often cannot meet the new requirements of the industry for talents, so the effective practice of exhibition professional education and teaching is particularly important.

The education and teaching of exhibition majors face some key issues. Firstly, it is the determination of educational goals and the adaptability to industry needs. The development of the exhibition industry is changing rapidly, and educators need to timely understand industry trends and changes in demand in order to ensure the cultivation of talents who meet industry requirements. Secondly, the optimization and diversification of teaching methods. Traditional teaching methods may not meet students' individual needs and Learning styles, so more innovative teaching methods and strategies need to be explored to stimulate students' learning interest and participation. In addition, the improvement of evaluation methods is also a key issue in education and teaching. How to comprehensively evaluate students' comprehensive abilities and professional qualities, and provide them with effective feedback and guidance, is an aspect that educators need to think about and improve.

## 2. Research Objectives

The goal of this study is to identify the key goals of exhibition education and teaching, and to provide methods and strategies for achieving these goals. The goals of exhibition education and teaching include cultivating students' professional knowledge and skills, enhancing their creativity and innovation ability, promoting the development of

communication and collaboration abilities, and providing opportunities for practical experience and industry cooperation. By clarifying goals, educators can design effective teaching plans and training programs to meet the requirements of the exhibition industry.

## 3. Research Methodology

On the basis of comprehensive literature research, combined with the author's practical experience in the education and teaching of exhibition majors, effective teaching methods and strategies are summarized and summarized in practice. By analyzing one's own teaching achievements and student feedback, identify and solve problems during the teaching process, and reflect and improve. Extract key methods and strategies for education and teaching in the exhibition industry, including setting teaching objectives, designing teaching content and curriculum arrangements, selecting teaching methods and resources, and developing evaluation methods and standards.

## 4. The Research Findings

### 4.1 The Clearly defined learning objectives are crucial for guiding students' learning and development

In exhibition education and teaching, educators should be closely linked to industry practice to ensure that the learning goals set are in line with industry needs and trends. Such goal setting can provide students with clear direction and goals, helping them understand the academic knowledge and professional abilities they need to possess in the field of exhibitions.

By clearly defining learning objectives, students can better understand their learning direction and prepare for future career development. For example, educators can set learning goals that require students to master knowledge and skills in the planning, organization, and execution of exhibition projects, as well as essential abilities such as marketing, communication, and teamwork. The setting of these goals can help students clarify the direction of their efforts in the learning process, improve learning motivation and effectiveness.

In addition, educators should continuously communicate and research with the exhibition industry to understand the latest needs and trends of the industry. This can ensure that the established learning objectives are consistent with changes in the industry, and timely adjust teaching content and methods to enable students to acquire the latest and most practical knowledge and skills. Educators can also establish cooperative relationships with industry professional organizations, enterprises, and institutions to provide practical opportunities and career development support for students, further promoting their learning and development in the field of exhibitions.

#### **4.2 The Diversified teaching methods and evaluation methods can promote students' comprehensive development**

In exhibition education teaching, adopting diverse teaching methods can stimulate students' interest and participation. Case analysis is an effective teaching method. By studying and analyzing practical cases, students can apply theoretical knowledge to practical situations, cultivate problem-solving skills and practical operation skills. Case analysis can help students gain a deeper understanding of the operation of the exhibition industry and guide them to think and propose innovative solutions.

Team projects are an important way to cultivate students' teamwork and communication skills. In exhibition education and teaching, organizing students to collaborate and complete team projects can promote their collaborative ability and effective communication and exchange. Students play different roles in the team, learn to listen to others' opinions, negotiate choices, and solve problems through collective wisdom, cultivating professional qualities with teamwork spirit.

Field visits are also an important teaching method. By arranging students to visit actual exhibition venues and observe industry exhibitions, students can personally experience and understand the operation of the exhibition industry. Field visits can help students combine theoretical knowledge with practical operations, enhance their understanding of the exhibition industry, and stimulate their interest and enthusiasm in the industry.

The evaluation methods should be matched with the learning objectives to comprehensively evaluate students' comprehensive abilities and professional qualities. Personal reports can encourage students to delve into specific topics and showcase their viewpoints and thinking abilities through written expression. Team presentations can evaluate students' collaborative abilities, creative thinking, and oral expression abilities. The evaluation of practical project achievements can evaluate students' contributions and performance in actual exhibition projects.

#### **4.3 The Collaboration with the exhibition industry is key to providing practical experience and career opportunities**

Collaboration with the exhibition industry can provide practical opportunities and career development support for students. Through collaboration with industry professional organizations, enterprises, and institutions, students can participate in industry related projects and activities firsthand to understand the internal operations and practical operations of the exhibition industry. This practical opportunity helps students integrate classroom learning with practical

applications, enhancing their practical abilities and professional literacy. By participating in real exhibition activities, students can better understand the needs and requirements of the industry and prepare for future career development.

Collaborating with industries can also provide valuable career opportunities for students. Industry professional organizations and enterprises typically provide internships, training, and employment opportunities, allowing students to interact with real work environments and engage in communication and cooperation with industry professionals. This close connection with the industry can help students establish extensive network relationships, understand industry trends and trends, and increase employment competitiveness. Practical experience is very important for students' career development, as it can give them more confidence in finding a job and enable them to better adapt to the professional environment and challenges.

#### **4.4 The Reflection and improvement are indispensable responsibilities of educators**

In the education and teaching of exhibition majors, educators' reflection and improvement are indispensable responsibilities. By continuously analyzing teaching outcomes and student feedback, educators can identify problems and take corresponding measures to improve their teaching level.

Educators should regularly communicate and provide feedback with students. They need to listen to students' learning experiences and needs, collect their opinions and suggestions. By understanding students' perspectives, educators can better understand their needs and adjust teaching methods and strategies in a timely manner to better meet their learning needs. This effective communication and feedback mechanism helps educators identify problems in a timely manner and provides direction for improvement.

Educators should actively participate in educational seminars and training courses, exchange experiences and share teaching methods with other educators. Through interaction and cooperation with peers, educators can gain new teaching concepts and practices, and broaden their teaching horizons. This opportunity for professional communication enables educators to learn from the successful experiences and teaching innovations of others, further improving their professional literacy and teaching abilities.

Educators should also use various evaluation tools and methods to evaluate their teaching. By collecting students' learning outcomes and feedback, educators can have a comprehensive understanding of their teaching effectiveness. They can analyze student performance, evaluate the effectiveness of teaching strategies, and adjust their teaching plans based on the results. This process of reflection and improvement helps educators improve the quality of teaching, enabling students to achieve better learning experiences and outcomes.

In summary, the findings of comprehensive literature research and educational experience reveal the key elements and successful practices of exhibition education teaching. Clear learning objectives, diverse teaching methods, cooperation with industries, and reflection and improvement by educators are all important factors in promoting students' comprehensive development. These findings provide guidance and inspiration for the education and teaching of exhibition majors, and can provide reference for educators to make corresponding adjustments and optimizations in teaching practice.

## 5. CONCLUSIONS

The effective practice of education and teaching in the exhibition industry is a process of continuous development and improvement. The research results of this paper provide educators with methods and strategies for achieving the teaching objectives of exhibition education. Clear defined learning objectives, close connection with industry practice, diverse teaching methods and evaluation methods, and opportunities for cooperation with the industry are all key elements in cultivating excellent exhibition professionals who meet industry requirements.

With the development of technology and the arrival of the digital age, how to integrate innovative teaching technologies and tools to improve teaching effectiveness and student experience is a topic worth studying. For example, using virtual reality and augmented reality technology to conduct exhibition simulation practices can provide students with a more realistic learning experience. In addition, interdisciplinary research methods can be used to explore the integration of exhibition education and related disciplines, promoting the comprehensive development of exhibition professional education.

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# Exploration Of Quality Teaching Mode of Higher Vocational Chemistry Under New Media Technology

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**Abstract:** With the wide application and popularization of information technology, new media technology has become an important tool to improve the quality of education. Through literature review and field research, this paper aims to explore the quality model of new media technology in teaching higher vocational chemistry. It is found that the application of new media technology can improve students' learning interest and engagement and positively impact the understanding and mastery of higher vocational chemistry knowledge. Students' acceptance of the new media technology teaching model is high and has the potential for promotion and application. The final conclusion shows that the rational use of new media technology can enhance the effect and quality of higher vocational chemistry teaching, stimulate students' learning motivation, and promote the development of higher vocational chemistry education. This study provides lessons and references for higher vocational chemistry education and promotes the innovation and optimization of the teaching mode.

**Keywords:** New media technology, higher vocational education chemistry, teaching mode.

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## 1. INTRODUCTION

With the rapid development and wide application of technology, more and more young people are active on new media platforms such as Jitterbug, AR, and WeChat. They not only seek entertainment and leisure on these platforms but also use them as a way to learn. According to the Short Video User Value Research Report 2022, in the post-flow era, the user penetration rate of new media platforms has reached 93.2%, and users prefer content about life skills, knowledge, and science, which become part of their fragmented learning.

Can new media technologies play an important role in the field of education? With the versatility and interactivity of new media technologies, the field of education has opened up entirely new opportunities and possibilities. In this digital era, chemistry teaching in higher vocational education (higher vocational) is also facing increasing challenges and demands.

Teaching chemistry at the higher vocational level faces multiple challenges. Traditional teaching methods and resources can no longer meet the learning needs of modern students. Students aspire to learn chemistry through more vivid, interactive, and multimedia approaches to enhance their interest and engagement in learning. In addition, the characteristics of higher education dictate that teaching and learning in this field need to be closely integrated with practical applications, thus requiring an effective teaching model that promotes students' understanding and mastery of practical applications.

In this context, the application of new media technology in the teaching of chemistry in higher vocational education has become particularly important. According to McLuhan's media concept of "The medium is the message", the use of any communication medium will have a great impact far beyond its content. Through the use of new media technologies, students can be provided with richer and more diverse teaching resources and learning experiences. For example, through the use of new media tools such as animation, modeling, simulated experiments, and virtual practice, abstract chemical concepts and experimental processes can be vividly presented to enhance students'

understanding and memory of chemical knowledge. In addition, new media technologies can provide opportunities for personalized and self-directed learning, allowing students to learn according to their own learning pace and interests.

Therefore, this study aims to explore the quality teaching model of new media technologies in teaching chemistry at the senior level. Through literature review and teaching practice, we analyze the current situation and impact of new media technology in senior chemistry teaching and evaluate its effectiveness. In order to improve the quality and effect of higher vocational chemistry teaching, stimulate students' learning motivation, and promote the innovation and development of higher vocational chemistry education.

## 2. THE LITERATURE REVIEW

The application of new media technology in higher vocational chemistry teaching is increasing, and a variety of new media tools and platforms are widely used in classroom teaching and learning aids. Through the review of related literature, we can understand the following aspects of the application.

First, new media technology is widely used for knowledge presentation in higher vocational chemistry teaching. Yang Ligu (2023) and others used C4D software to create virtual animations of a three-dimensional methane structure model, conjugation effect in benzene molecule, and electrophilic addition reaction mechanism of ethylene and bromine, demonstrated its application in organic chemistry classroom teaching, and put forward the idea that 3D virtual animation can improve the classroom efficiency and learning efficiency. Che Xiquan, Ren Tiejun (2003) through the 3DMax in organic instrument modeling, demonstrate animation production to break through the limitations of two-dimensional space, to achieve the production of courseware to try and reform. Through the use of animation, virtual experiments and simulation software, and other multimedia teaching means, teachers can present chemical concepts and experimental processes in a more vivid and graphic way, thus increasing students' interest and participation in learning, and thus promoting their understanding and mastery of chemical knowledge.

Secondly, new media technology has also been applied to practical teaching in higher vocational chemistry. Tang Sheng (2023) introduced the application of Yenka virtual experiment software in classroom teaching by taking the experiment of

### 3. THE PROPOSED METHODOLOGY

#### 3.1 The Research Design

In this study, a set of teaching practices were designed to

CLASSES	N	AVERAGE VALUE	STANDARD DEVIATION	95% CONFIDENCE INTERVAL OF THE MEAN		t	P
				LOWER LIMIT	UPPER LIMIT		
Class 1	47	68.67	9.155	-0.398	0.411		
						.032	.974
Class 2	47	68.62	8.191	-0.397	0.411		

the effect of catalyst on the rate of chemical reaction as an example. Jia Bin (2021) found through practice that introducing microclasses into classroom teaching to break the limitations of time and space can effectively improve the efficiency and quality of teaching, and enhance students' active learning habits. With the help of virtual laboratory and simulation practice software, students can carry out simulations and practice of actual operation, and familiarize themselves with experimental steps and operation skills in advance. This practical teaching mode helps to strengthen students' practical application ability and problem-solving abilities and improve their practical operation level in the vocational field.

Third, new media technology can provide students with the opportunity for personalized learning and independent

assess the effectiveness and impact of new media technologies in teaching chemistry at the higher vocational level. In this teaching practice, Class 1 of the Pharmaceutical Preparation Technology program in a higher education institution was selected as an experimental class and Class 2 as a control class. In a certain final examination, the average score of class 1 was 68.67 and the average score of class 2 was 68.62, which shows that the student's learning level is comparable. The t-test was performed using IBM SPSS 27 and the statistics are shown in Table 1 below, which shows that  $T=0.032$ ,  $P=0.974 > 0.05$ , so there is no significant difference between the two classes, and the experimental criteria are met.

Table 1: Data processing results before teaching practice

#### 3.2 The Results and Discussion

CLASSES	N	AVERAGE VALUE	STANDARD DEVIATION	95% CONFIDENCE INTERVAL OF THE MEAN		t	p
				LOWER LIMIT	UPPER LIMIT		
Class 1	47	83.65	8.937	1.400	2.375		
						9.168	<.001
Class 2	47	66.05	9.652	1.268	2.366		

learning. Yun Wang, Xutao Zhang & Lijie Zhang (2023), Xiaofang Gao (2023) and Junhong Yang (2023) have studied the construction of online teaching platforms and online teaching modes. Sun Tian Linzi & Shen Shusheng. (2017) proposed that the purpose of MOOC learners' learning is not to complete the course, but only to acquire it selectively according to their actual needs. Through tools such as online teaching platforms, learning management systems, and e-books, students have the opportunity to learn according to their own learning progress and interests and to choose learning resources and learning modes that suit them. This mode of personalized and self-directed learning helps motivate students and develop their independent learning skills.

However, although new media technology has many advantages in the teaching of chemistry in higher vocational education, it also has certain limitations. Firstly, new media technologies require corresponding hardware and software support, and their introduction and maintenance costs may be high, requiring relevant facilities and technical support. Secondly, the use of new media technologies requires teachers to have appropriate technical and teaching skills, otherwise, the teaching effect may be affected. In addition, the use of new media technologies requires reasonable teaching design and integration of course objectives and student needs.

Therefore, traditional teaching methods and new media technology teaching modes were used to teach the two classes respectively. The following is our analysis of the practical results and discussion of the positive impact of new media technology in the teaching of chemistry in higher vocational education. In order to test the experimental effect, 94 questionnaires were randomly distributed respectively and 94 were recovered, and the Cronbach's coefficient was 0.890, indicating good reliability. The results of data processing after teaching practice, as shown in Table 2.

Table 2: Results of data processing after teaching practice

As can be seen from the above table, there is a difference of 17.6 points in the mean score of the overall grades of the two classes, and the T-test result of  $P < 0.001$  shows that there is a significant difference between the two classes. From the point of view of learning achievement, students using the new media technology teaching mode showed more stable performance and higher overall grades and achieved better learning results. In the comparison of scores on various knowledge points, the average scores of students using the new media technology teaching mode were higher than the scores of students using traditional teaching methods. When encountering questions that require strong spatial imagination such as examining the ball-and-stick model of organic molecules, molecular formulas, structural formulas, electronic formulas, etc., as well as complex chemical reaction

mechanisms, students were able to achieve better learning results by using the new media technology teaching mode.

Based on the experience of the qualitative study, we compared the students of the experimental class and the control class in two aspects: classroom performance and after-class feedback. The comparison results are shown in Table 3.

Table 3: Results of the comparison of teaching practices between the two groups

FORMENT ERPRISENEw Media Technology Teaching ModelTraditional Teaching methodsLearning Interest and Participation Engagement	ENTERPRISENEw Media Technology Teaching ModelTraditional Teaching methodsLearning Interest and Participation Engagement	New Media Technology Teaching ModelTraditional Teaching methodsLearning Interest and Participation Engagement	Traditional Teaching methodsLearning Interest and Participation Engagement
Learning Interest and Participation Engagement	Percentage of students interested in both teaching modes69%47%The average number of questions asked during class discussions5.2 times3.8 timesStudent engagement in hands-on practice87%	69%47%The average number of questions asked during class discussions5.2 times3.8 timesStudent engagement in hands-on practice87%	47%The average number of questions asked during class discussions5.2 times3.8 timesStudent engagement in hands-on practice87%
	The average number of questions asked during class discussions5.2 times3.8 timesStudent engagement in hands-on practice87%	5.2 times3.8 timesStudent engagement in hands-on practice87%	3.8 timesStudent engagement in hands-on practice87%
	Student engagement in hands-on practice87%	87%72%Students' Acceptance Degree and FeedbackThe proportion of students with a positive attitude towards new media technology teaching mode84%-	72%Students' Acceptance Degree and FeedbackThe proportion of students with a positive attitude towards new media technology teaching mode84%-Percentage

		Percentage of students who believe that new media technologies provide more learning opportunities and resources78 % -The proportion of students who think the new media technology teaching model is attractive and actionable78 % -The proportion of students who think the new media technology teaching model enhances practical skills83% -Percentage of students who believe that the new media technology teaching model has a positive impact on learning outcomes79 % -Percentage of students who think teachers need to better master and use new media technologies	of students who believe that new media technologies provide more learning opportunities and resources78 % -The proportion of students who think the new media technology teaching model is attractive and actionable78 % -The proportion of students who think the new media technology teaching model enhances practical skills83% -Percentage of students who believe that the new media technology teaching model has a positive impact on learning outcomes79 % -Percentage of students who think teachers need to better master and use new media technologies
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Percentage of students who think teachers need to better master and use new media technologies	68%- Percentage of students who want richer learning resources73 %-	-Percentage of students who want richer learning resources73 %-
Percentage of students who want richer learning resources73 %-	73%-	-

The new media technology teaching model has also achieved a positive impact from the perspective of students' interest and engagement in learning. In the survey, 69% of the students indicated that they were interested in the new media technology teaching mode, while only 47% expressed interest in the traditional teaching method. In terms of student engagement, students who used the new media technology teaching mode participated more actively in class discussions and hands-on practice. In classroom discussions, the average number of questions asked by students using the new media technology teaching mode was 5.2, while the average number of questions asked by students using the traditional teaching mode was 3.8. In hands-on practice, the participation of students using the new media technology teaching mode was 87%, while the participation of students in traditional teaching methods was 72%.

In terms of student acceptance and feedback. In the survey, 84% of the students had a positive attitude toward the new media technology teaching mode. They think that new media technology provides more opportunities and resources for learning.78% of the students think that new media technology teaching mode is more attractive and maneuverable. They like to learn through multimedia resources, virtual experiments, and simulation software, etc. 83% of the students indicated that the new media technology teaching mode enhanced their practical skills. Virtual experiments and simulation software enabled students to perform experiments in a safe and unrestricted environment, which enhanced their practical skills and experimental design abilities.79% of the students felt that the new media technology teaching mode had a positive impact on their learning outcomes. They felt that it was easier for them to grasp and apply their chemistry knowledge through the interactive teaching methods and rich learning resources.68% of the students felt that teachers needed to better grasp and utilize new media technologies to support teaching.73% of the students made suggestions for providing richer learning resources. They would like to have access to more tools such as multimedia resources, online teaching platforms, and laboratory simulation software to learn chemistry more comprehensively.

As can be seen, there are still some challenges in the application of new media technologies in teaching chemistry at the higher vocational level. For example, the support of technical equipment and software requires the investment of appropriate resources; teachers need professional training and instructional design in order to fully utilize the advantages of new media technologies; and there are differences in students' acceptance of technology and ability to use it, which requires the provision of individualized support and guidance.

### 3.3 The Practical Suggestions

Strengthen teacher training and mentoring. Relevant training courses and resources should be provided. At the same time, teachers are encouraged to share their experiences and teaching resources with their peers in order to promote cooperation and learning among teachers. Teachers should have a comprehensive understanding and mastery of the application methods and tools of new media technologies, and integrate them into the design and implementation of teaching, such as class check-in software and interactive question-and-answer software. By selecting appropriate multimedia resources, virtual experiments, and simulation software, etc., teachers can create more attractive and interactive learning environments that stimulate students' interest in learning and promote their in-depth understanding and application of chemistry knowledge.

Improvement of educational facilities and technical support. The school provides advanced hardware and software tools to create a new model of an organic combination of laboratory+online teaching. At the same time, it establishes a specialized technical support team to solve the problems encountered by teachers and students in the process of use in a timely manner. This can ensure the smooth running of the teaching process and give full play to the positive impact of new media technology in education.

Encourage research and innovation. Provide support and incentives for teachers and researchers to encourage them to carry out research and innovation in the application of new media technology in higher vocational chemistry teaching. Schools can set up special research projects and funds to support teachers and researchers to conduct in-depth studies on new media technologies in teaching chemistry in higher vocational education and to promote development and innovation in this field.

Provide rich learning resources. Establish a unified platform or database to integrate various chemistry learning resources, including videos, simulation experiments, online courses, etc., so that they can be used by students for independent learning and by teachers for lesson preparation. At the same time, encourage teachers to share the teaching resources they have developed and form a good resource-sharing mechanism.

Strengthen students' technical skills training. Provide students with the necessary technical training to help them master the basic operation and use of new media technology. In addition, students are encouraged to participate in the design and implementation process in the teaching of new media technology to cultivate their innovative thinking and practical ability. Collective discussion forums are set up through network software so that students can actively participate in the learning life in the process of brainstorming, and make use of the innovative thinking of different students to actively optimize their own learning methods.

Promote cooperative learning and practice. Utilize new media technologies to promote collaborative learning and practice

activities among students. For example, through online collaboration tools and virtual labs, students can work together to research and solve chemistry problems, conduct simulation experiments, and share each other's findings and experiences. Such collaborative learning and practice can enhance students' teamwork, communication, and problem-solving skills.

### 4. CONCLUSIONS

This paper explores new media technology in the teaching of chemistry at the higher vocational level and finds that it has great potential for improving the quality of education. The findings show that the application of new media technology can stimulate students' learning interest and increase their participation, which positively affects the understanding and mastery of chemistry knowledge in higher vocational education. Students' high acceptance of the new media technology teaching model provides an opportunity to promote and apply the model. The final conclusion shows that the rational use of new media technology can enhance the effect and quality of higher vocational chemistry teaching, stimulate students' learning motivation and promote the development of higher vocational chemistry education.

However, we should also recognize that the application of new media technology is not a once-and-for-all solution, but requires continuous innovation and optimization. Teachers need to continuously learn and master new technologies to ensure their correct integration into the teaching process. At the same time, they need to pay attention to the design of teaching content and teaching methods and combine new media technologies with other effective teaching strategies to achieve better teaching results.

In addition, the government and schools should give sufficient support and investment to provide teachers with appropriate training and technical support in order to promote the wide application of new media technologies in higher vocational chemistry teaching. At the same time, a good monitoring and evaluation mechanism should be established to identify and solve the problems in the application of new media technologies in a timely manner and evaluate their effects to further improve and optimize the teaching mode.

In conclusion, new media technology brings many opportunities for higher vocational chemistry teaching, but we also need to be fully aware of its limitations and challenges and strive to seek innovation and optimization in order to continuously improve the quality and effectiveness of higher vocational chemistry education. It is hoped that this study can provide a reference and reference for higher vocational chemistry education and promote the innovation and development of teaching mode.

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# The Development Status and Trends of Computer-Aided Industrial Design Technology

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**Abstract:** The development status and trend of computer-aided industrial design technology in recent years, computer-aided industrial design has been used more and more frequently in production processes, and its role has become increasingly prominent. Based on the current development situation of computer aided industrial design, this paper looks forward to the future development trend of computer aided industrial design. According to the nature and characteristics of Computer-aided design technology (CAD) and computer aided industrial design technology (CAID), this paper analyzes this problem from different perspectives. First, it briefly describes the computer aided industry and design technology. Then, the status of the development of computer-aided industrial technology was studied and analyzed, and finally, the development trend of computer-aided industrial design technology was explored.

**Keywords:** Development Status, Computer Aided, Industrial Design Technology

## 1. INTRODUCTION

Computer-aided design technology is an innovative technology under the premise of rapid development of network and communication technology. The computer aided industrial design technology is more professional than Computer-aided design technology. It is mainly aimed at the industrial design field and integrates the essence of CAD technology and ID technology. It can play a more powerful design function in industrial design and improve the quality of industrial products.

Reasonable industrial product structure design can save a lot of time for product development, reduce resource loss, and improve the effective utilization rate of resources. As of now, industrial design is still the foundation of computer-aided industrial design, creating and innovating traditional industrial technologies. Compared with traditional industrial technology, computer-aided industrial design is much more advanced. In addition, while improving the appearance of products, a series of improvements and optimizations have been made to the performance and operation methods of industrial products.

The core of industrial technology development is to continuously innovate and improve technology. In the increasingly fierce market competition environment, to prevent products from being eliminated, it is necessary to innovate and reform the appearance, structure, and material of products to make them more attractive and attract customers to purchase. Only in this way can we survive in the fierce market competition and not be eliminated by other products. Innovation is the soul of various design fields, and of course, it is no exception in the field of industrial design. In the early 21st century, major manufacturing industries around the world relied on knowledge as the foundation for innovative product creation, which was the core of competition at that time.

For products, whether it is their function, appearance, materials, or craftsmanship, any innovative changes in any aspect will greatly affect their market competitiveness, and even directly affect the quality of the product. In the field of computer-aided industrial design, how to apply popular high-tech technologies such as genetic algorithms and virtual implementation in the market? When researching computer-aided industrial design, it is necessary to organically combine

new and old technologies. One design method is based on virtual reality, and currently China has relatively mature agile design and virtual design, and corresponding improvements and developments have been achieved. Many design systems are developed based on virtual reality technology, which is widely used to design structures and shapes.

Therefore, in future industrial production, the development trend of industrial design is constantly increasing, and with the increasing demand for personalized customization by modern people, it is imperative to strengthen the functional development of industrial design. To achieve the optimal goals of industrial design, it is necessary to enhance the application of computer technology, develop relevant software and hardware functions in computer networks, and provide more technical support for industrial design. Compared with other developed countries, China's research on computer assistive technology is relatively weak and backward. So far, it has only been about 20 years, starting much later than other countries.

In the future development of computer aided industrial design, designers should go deep into the field of technological innovation, summarize the design methods and principles of various products in a timely and necessary manner, and lay the foundation for future industrial design and computer-aided design. Then, a systematic industry standard can be formed to better determine the direction of future industrial design development. To obtain a more accurate and comprehensive theoretical basis for computer-aided industrial design technology, we should pay timely attention to the research and development of new methods of computer-aided industrial technology, share accurate design principles and data, and promote the development of the industrial industry.

## 2. THE PROPOSED METHODOLOGY

### 2.1 Development status of computer-aided industrial design

For example, although we can now rely on electronic information technology to establish some data models, our technology in virtual reality technology and artificial intelligence model building is far from meeting the standards of developed countries, so there is still room for improvement. Design for collaboration and parallelism. This technology is one of the main development directions of current technology.

For the industrial design industry, the sense of product design is very important, and detailed research must be conducted on the functions, principles, appearance, and other aspects of the product. Many scholars have observed various contents in parallel environments from different perspectives of this technology and delved into them for relevant understanding and exploration.

In the application of computer integration, intelligent technology provides corresponding support. In the process of industrial design, artificial intelligence technology can unleash creative thinking and provide human-machine interaction. Through the introduction of creative thinking, design methods, innovative design, etc., intelligent technology can be understood in a broad sense. Throughout the entire design process, a creative process is reflected, which is design. Designers cleverly transform their ideas into actual patterns, which is a very important and complex process. At the same time, it is also necessary to have a deep understanding of market demand through the Internet, making the content of industrial design more comprehensive and systematic, and meeting consumers' purchasing needs.

Modern industrial design has introduced the updated technology CAID, achieving synchronous development between computer technology and industrial design, providing diversified design concepts for industrial design. The future industrial design will inevitably integrate with CAID technology and achieve an integrated presentation mode in a virtual environment. With the rapid development of science and technology, computer-aided industrial design has become a powerful tool for industrial design. In recent years, computer-based industrial design technology has been widely applied in various industries. Product design is the core of computer-aided design, and the concept of product design should follow the principle that product design should be adapted to product performance. The goal of product design should be the launch and sales of product design. Product design should focus on this, and product development should become the trend of the times.

Another design method is based on VR. So far, China has developed relatively proficient technologies for virtual design and agile design, and we have made significant progress and improvement in these technologies. For product design, a technology that many scholars are also very popular with is reality technology. For the design of openings and structures, people have used VR technology, and at the same time, many design systems based on VR have been developed accordingly. Sketch design and free-form surface design represent the main design research of computer aided modeling technology. Product modeling is people's intuitive understanding of the product, and modeling determines business opportunities. Therefore, the improvement of modeling technology is also the constant pursuit of designers. Before product modeling is launched, it must go through sketch design. Sketch design can effectively fill the gap between Computer-aided design technology and industrial design.

## 2.2 Development Trends of Computer Aided Industrial Design

Sketch reconstruction and human-machine interaction are the key to this technology, and the key is how the design system simulates designs that have been manually drawn by designers. The development of CAID technology in modern industrial development has not yet formed a complete development system, and in optimizing design solutions in

industrial production, the development of CAID technology still needs further development and improvement. Driven by today's science and technology, CAID technology is bound to achieve innovative development in the future, providing more convenient technical support for industrial design. Given the increasingly mature artificial intelligence technology at present, it is highly possible for CAID to achieve human-machine integration in the future development process and establish an open artificial intelligence database system to provide integrated services for product design, production, and development.

Computer assisted industrial design requires artificial intelligence. Artificial intelligence has unique advantages in the field of industrial design, and as a technology, designers must possess a certain degree of open and creative thinking to complete design tasks through human-machine collaboration. Designers should use computer technology to conceive their own ideas and make abstract things visible. From the current industrial design perspective, whether it is its development direction or the design of the product itself, it is necessary to use precise and similar methods to study some design processes and methods, to lay the foundation for the theoretical content of CAID. In different production fields, the core of the industry is the design of products, which can be called the core concept of the product.

This concept is fully reflected in three aspects, and the development of product design is consistent with this concept, which is a leapfrog concept. In the context of human-machine integration, CAID can provide designers with more information feedback, making it easier for them to make better business decisions and promote the personalized development of CAID. At the same time, it is also conducive to faster updating and upgrading of industrial products to meet the development needs of modern society. With the arrival of the new era, China's economic level has been improved, and computer technology has been applied in various fields. Computer CAD has achieved good results in various aspects. However, with the continuous progress and development of society, CAD still has certain problems in design methods and processes. Therefore, we need to continuously develop and innovate. Computer technology, as one of the powerful tools in industrial design, there are limitations in certain aspects.

Therefore, CAD is not only the necessity of design innovation, but also the goal of industrial design development, thus ensuring the sustainable development of Computer-aided design. Its evaluation process and research and design process need the support of intelligent technology, Research on intelligent technology in industrial design. Parallel, collaborative, and full lifecycle. In the research process of this technology, cost, and manufacturing reasons, as well as parallel technology, should be considered. In the process of research, there should be a certain level of collaborative design technology among relevant designers in various fields, whether they are the same or different. Conduct research on related technologies with a full lifecycle.

## 3. CONCLUSION

With the improvement of material living standards, people's demand for products is no longer limited to practicality and quality, but also focuses on the design appearance and innovative concepts of products. This also puts forward higher production design requirements for modern industrial design. Modern advanced science and technology have also provided technical support for the emergence of CAID technology. With the continuous improvement of people's needs, the

design direction of products will inevitably develop towards intelligence, digitization, networking, and other directions. With the assistance of computers, industrial design will inevitably develop in the direction described above, ultimately becoming a unified technical model. Designers in industry will combine with engineering designers to become more comprehensive designers.

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# Application Research on Construction Information Integration of Prefabricated Building Based on BIM and RFID Technology

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**Abstract:** According to the construction situation of Prefabricated building, it covers many processes such as component prefabrication, transportation, assembly, etc. There are many types of prefabricated components, many participants, and higher requirements for information transmission to achieve accurate construction and management. This paper, starting from BIM and RFID technology, discusses its application in the construction process management of Prefabricated building, and verifies its management effect through case analysis, a set of information management system for the whole process of prefabricated building construction based on BIM technology has been formed, which controls and manages the construction progress, quality and cost, and improves the management efficiency and efficiency of prefabricated building construction stage.

**Keywords:** Construction Information Integration, Prefabricated building, Application Research, BIM, RFID Technology

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## 1. INTRODUCTION

As a kind of building with high efficiency, high precision, low cost, good quality and resource conservation, Prefabricated building has been widely used. Compared with its advantages, Prefabricated building also has higher requirements for technology and management, its workflow and construction links are relatively complex, and the transmission of relevant information in the project must be accurate and timely. Therefore, BIM and RFID are emerging information management technologies, it is of great significance to integrate and apply it well. However, there are still some problems in the construction process of Prefabricated building at this stage. Because this mode is to transport prefabricated components to the construction site for equipment, the actual construction progress is affected and restricted by many factors such as the manufacturer's component production efficiency and transportation mode.

In addition, since the relevant building components are pre ordered for production before construction, any changes made to the relevant plans during the construction phase will result in the need for the early components to be re produced, leading to increased construction costs and delayed construction periods. During the use of Prefabricated building, they will be limited by the environment of the construction site, and many problems will be encountered, including that the on-site construction can only be carried out after the components are transported to the site. Therefore, the processing of internal parts of the factory needs to be paid attention to during the on-site construction, so as not to restrict the construction of the project. The components required for construction are all completed before the start of the construction of the project. If the design scheme is changed on the site, The components need to be remade. Under the background of the rapid development of science and technology, various new construction materials and construction management schemes are emerging, further improving the quality of current construction projects. The construction technology of Prefabricated building is a green and low-carbon construction method in the construction of

modern construction projects, which is widely welcomed by the current construction industry.

However, it should be noted that due to the relatively short application time of prefabricated building engineering construction technology, there are relatively many factors that will have an impact on the construction quality in the actual construction process. By consulting literature, the identified quality impact factors are listed, and these factors are sorted into an initial factor table with clear expression and concise language, then the table is made into a questionnaire and distributed to employees of real estate development enterprises, construction enterprises, teachers of relevant majors in colleges and universities and other personnel. In the hoisting stage of Prefabricated building components, 4D construction simulation animation is formed based on the BIM model and the schedule plan. By simulating the real construction progress and conditions, the construction scene is previewed to visually express the construction process flow of each component and realize the visual disclosure of complex nodes. Using RFID readers to collect real-time data, the entire construction component management situation will be included in the BIM software database. BIM guides the installation work, updates, and controls the use of machinery and lifting routes in real-time, and improves construction efficiency and quality.

The IFC standard is a computer processable standard for the representation and exchange of building data, providing specifications for the description and definition of various information processed during the construction project implementation process. At the same time, IFC can overcome the problem of software data incompatibility. Therefore, to achieve maximum data sharing, BIM technology needs to be applied under the IFC standard. BIM technology based on IFC standards for digitization.



## 2. THE PROPOSED METHODOLOGY

### 2.1 Overview of BIM and RFID

#### Technology

It is to put time and cost into the existing 3D model, establish a Building information modeling, and then analyze the model. It is to check the placement and preservation of on-site materials, analyze the project progress, judge whether the investment of funds is scientific, find potential problems in the simulation process, reasonably set the construction period, adjust the allocation of funds, and guide the actual construction with the model. It will construct a model based on the existing operating system, input information in the corresponding positions, including the corresponding position, name, specifications, etc. of the accessories, and be independently modeled by the system. In the actual construction process of engineering projects, BIM and RFID technology can play an extremely important role in the stages of component production, transportation, entry, on-site management, lifting, etc.

First, most of the building components used in the Prefabricated building project are centrally produced by the assembly manufacturers in the factory after the needs of the construction activities are identified. At this stage, once the component size errors, it will inevitably hinder the smooth development of the subsequent construction activities. At this stage, to effectively ensure the quality and safety of components, RFID coding technology can be incorporated into the construction and production process, through project coding and positional numerical annotation of the construction, this project only takes the construction management of color steel plate hoisting as an example to analyze the application of BIM and RFID technology. To accurately guide the hoisting of color steel plates, the high span section was scanned, and the processed point cloud data was compared with the BIM model to visually analyze the deviation of each section.

According to the actual situation, 83 key nodes such as beams, columns, beams, and slabs are selected for the project, and simulated and analyzed by qualify software. According to the comparison results, the construction method of prefabricated building is different from that of traditional buildings. The main work in the construction phase is to transport the prefabricated components to the construction site in order according to the construction schedule requirements, and then hoist them on the site, complete the construction of the building by installing and fixing components on the construction site. RFID technology is a wireless radio frequency identification technology. The basic technology used in this technology operation is radio wave communication. Unlike communication technology, it does not require the use of optics, machinery, etc. Only the transmission of radio waves can automatically set targets and determine the information contained in the target. In the use of technology, multiple devices are used to cooperate with each other, and the system is used to assist in completing the operation.

The characteristic of its practical use is that it can understand target information without touching objects, and if the surface of the recognized object is covered by other objects, it will not affect recognition. At the same time, it can receive multiple label information at the same time, making information reading more convenient. In addition, the label can be used for a long time without being damaged. It is necessary to

promptly evacuate construction personnel other than maintenance personnel from the maintenance area.

### 2.2 Application of BIM technology in the construction process of Prefabricated building

At this point, to effectively improve the quality and efficiency of staff management work, BIM and RFID technologies can be used to partition the maintenance area, differentiate staff, and ensure that non maintenance personnel can leave the maintenance area in a timely manner. Meanwhile, during the maintenance process, once non maintenance personnel re-enter the area, BIM and RFID technology can also issue an alarm in a timely manner, facilitating the corresponding staff to guide non maintenance personnel to leave the area in a timely manner.

Since most of the components of Prefabricated building are prefabricated in the factory in advance, fully realizing industrial production, to a large extent, it is more guaranteed than the construction quality of cast-in-place components on the construction site, but it is not ruled out that there will be quality defects in the production process of individual components and damage to components caused by transportation, storage, and secondary handling on the construction site. At the same time, due to the non-standard operation of construction personnel and other reasons, the actual project cannot meet the design requirements, thereby affecting the quality of the building. The difference between Prefabricated building and traditional buildings is that the whole construction process is divided into five links, including production, transportation, mobilization, storage, and hoisting. Whether the construction method understands the production speed of components determines the construction progress.

In response to this situation, it is required to carry out RFID management from the perspective of the staff based on various stages of construction. It is not only necessary to strengthen the training of construction personnel before construction to ensure the quality and safety of PC components, but also to strengthen the management of engineering construction during the construction stage. After construction, the construction quality should be inspected to achieve the goal of effectively improving the construction quality. Due to the relatively complex process of engineering construction management, this article mainly takes construction management as an example to introduce the application of BIM and RFID technology. In Prefabricated building, components need to be fabricated in advance, so once design changes occur during construction, prefabricated components will become Construction waste and new components need to be produced at the same time, which will cause the cost of the project to rise; Since the construction process of prefabricated building is divided into five stages: component production, transportation, mobilization, storage and hoisting, and the implementers of each stage are different subjects, the cost management needs to be more refined than the traditional model.

For the prefabrication of the construction, the prefabrication personnel of the factory use the existing reading and writing equipment in their hands to put all information of the components into the chip. According to the user's requirements, the information is encoded in the chip. During the encoding process, rules need to be read and the coding should be scientifically designed according to the content of the rules. Subsequently, the producer puts the prepared chip

into the corresponding system to provide information for subsequent construction operations. Apply RFID technology for regular scanning, and then connect the scanned data to the component material management system in real time and perform point cloud processing. Compare it with the BIM model data information, visually analyze the actual construction site PC component entry, installation, and loss situation, update the BIM model, automatically complete the multi building image progress model, and dynamically adjust the subsequent PC component production in real time.

### 3. CONCLUSION

To sum up, BIM and RFID technology are two advanced and core technologies in the construction process management of modern prefabricated building. Compared with pouring buildings, prefabricated building is more convenient for tag implantation. Real time collection of construction site information through RFID technology and real-time transmission to BIM in the information center. BIM technology provides technical support for prefabricated building construction information update, linkage, transmission and sharing with the characteristics of efficiency, speed, and accuracy. Prefabricated building occupies an irreplaceable position in the construction industry with its efficiency and energy conservation. The organic combination of the two will greatly accelerate the promotion of Prefabricated building in China.

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# Research on the Integration of Marxist Labor Concept into Higher Vocational Labor Education Under the Background of Internet

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**Abstract:** Entering the new era, the party and the country continue to promote the construction of labor education, gradually forming a new era of Marxist labor concept with unique Chinese characteristics. Starting from digging the cultural foundation of the Marxist concept of labor in the new era, this paper analyzes the practical significance of strengthening and improving labor education, and further puts forward the development path of labor education based on the guidance of the Marxist concept of labor in the new era. The guiding role of labor education, publicizing labor models to create a labor-oriented campus environment, strengthening labor practice to improve the actual effect of labor education, and continuously strengthening labor education for college students in the new era.

**Keywords:** Marxist labor concept, higher vocation, labor education, Internet

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## 1. INTRODUCTION

In March 2020, the Central Committee of the Communist Party of China and the State Council issued the "Opinions on Comprehensively Strengthening Labor Education in Colleges, Middle Schools and Primary Schools in the New Era", which clearly pointed out that labor education is an important part of the socialist education system with Chinese characteristics, and directly determines the quality of socialist builders and successors. Labor mental outlook, labor value orientation and labor skill level. As the implementers of higher education, colleges and universities shoulder the mission of cultivating "socialist builders and successors with all-round development of morality, intelligence, physique, art and labor". As an indispensable part of the "five educations", "labor education" is also a shortcoming of quality education that current colleges and universities urgently need to make up. The application value of Marxist labor concept in labor education in higher vocational colleges.

Under the background of quality education, labor education has been valued in the education system of universities, middle schools, and primary schools. It is a necessary way to promote the growth of students and presents a strong educational value. According to Marxist philosophy, consciousness has an active role. A person's spiritual activity is a kind of consciousness activity, which can have a certain reaction to the individual's social practice. General Secretary Xi Jinping attaches great importance to the active role of the spirit of labor, emphasizing that "we must vigorously promote the spirit of model workers, the spirit of labor, and the spirit of craftsmanship." Let love for labor and down-to-earth work become common practice in the whole society. The concept of labor spirit is mainly reflected in two aspects: one is to promote the spirit of craftsmanship. Craftsman spirit means dedication, excellence, meticulousness, and pursuit of excellence.

The highly refined 16 characters reflect the strong sense of responsibility and mission of the craftsmen of the great country towards their work. The skilled craftsmen who dedicated their youth and sweat to the cause of socialism in our country run through the whole process of work with high

standards and strict requirements, constantly break through themselves, be brave in innovation, and produce more excellent labor products, so that people have more sense of gain happiness. The Marxist concept of labor in the new era has a distinct cultural foundation, injecting tenacious vitality into social progress, thereby promoting the development of the labor spirit in the new era. Continuously develop the Marxist labor theory in the inheritance, deeply integrate the value concept of China's excellent traditional culture, actively play the dominant position of the people in the new era, carry forward the spirit of labor in social practice, and undertake the mission of the times in the historical process. In such a general environment, the status of simple labor has declined compared with complex labor, and consumerism and entertainment have influenced the formation of college students' Marxist labor views.

Labor education in colleges and universities can help college students have a more accurate and scientific interpretation of labor creating human beings and human society under the socialist system: it can help students deeply understand that labor is the essential difference between humans and animals; it can help students realize that labor is the creation The basis of use value; to enable students to deeply understand that labor under the socialist system is labor in which laborers share the means of production and labor results, and it is equal labor that is free from exploitative nature. Vocational colleges should also gradually increase the proportion and intensity of labor education, and carry out various forms of labor practice activities in a purposeful and planned manner according to the professional characteristics and growth laws of students, so as to encourage students to achieve Finally, higher vocational colleges should comprehensively strengthen publicity work, flexibly use school magazines, websites, WeChat public accounts, Weibo accounts, etc., to push content related to labor education, so that students have a better understanding of labor education. A deep and comprehensive understanding.

## 2. THE PROPOSED METHODOLOGY

### 2.1 The development path of labor education under the guidance of the Marxist concept of labor in the new era

Labor education can help people establish correct labor values, improve labor efficiency, and create more social wealth. Based on the new era, General Secretary Xi Jinping has repeatedly emphasized the important role of labor education and incorporated it into the party's education policy, pushing the importance of labor education to a new level. First, attach importance to the education of labor practice concept. The concept of labor practice is an important part of the Marxist concept of labor. At present, labor is the only way for people to realize their ideals, and it is also the magic weapon for our party to lead the people to achieve the "two centenary" goals. Set up model workers from the vast number of laborers, and fully tap the fighting spirit and spirit of model workers. The consciousness of dedication, with the "big self" spirit that is in line with social development, continuously inspires the labor enthusiasm of the broad social groups in the whole society, invests in the modernization construction with the selfless spirit of hard work, and finally realizes the value pursuit of "no self".

It can be said that labor is the main carrier of human social creation, whether it is physical labor or mental labor, it is condensed into the crystallization of the wisdom of the people, forming both practical and creative explicit and implicit labor achievements, and jointly promoting social development. Contribute to the prosperity and strength of the Chinese nation. The Marxist concept of labor insists that labor is the only source of value creation. In a socialist market economy, division of labor and exchange coexist, and the necessary condition for gaining self-interest is to pay the labor needed by others. In a capitalist society, workers' living labor creates value, and capitalists seek benefits by extracting workers' surplus labor, which cannot create value. Labor education in colleges and universities can help college students establish correct labor values, emphasize the huge role labor plays in the creation of social material wealth, and the important position of laborers in social and historical development, and promote the most glorious, noble, and the spirit of labor is the greatest and most beautiful, cultivate college students to follow the laws of the market to improve their labor ability, and cultivate talents with all-round development of morality, intelligence, physique, art and labor for the construction of a socialist market economy.

Specifically, higher vocational colleges can flexibly use the facilities on campus, including cultural walls, cultural squares, etc., to display the stories of typical characters. publicity. Finally, when higher vocational colleges strengthen labor education, they can also use dormitory culture as a carrier to actively carry out activities such as dormitory labor rankings, reward dormitories with good performance, and criticize dormitories with poor performance, etc. During the activities, a good labor concept was gradually formed.

Secondly, in the process of promoting labor education, higher vocational colleges should also actively promote the construction of school labor education culture. Specifically, higher vocational colleges can flexibly use the facilities on campus, including cultural walls, cultural squares, etc., to display the stories of typical characters. publicity. Finally, when higher vocational colleges strengthen labor education, they can also use dormitory culture as a carrier to actively carry out activities such as dormitory labor rankings, reward

good-performing dormitories, and criticize poorly performing dormitories, etc. During the activities, a good concept of labor is gradually formed.

### 2.2 The practical path of integrating Marxist labor concept into labor education in colleges and universities.

The Marxist concept of labor is full of ideal brilliance and practical power. General Secretary Xi Jinping pointed out that teachers of ideological and political courses should clearly understand the close relationship between labor education and the growth and success of college students, guide college students to respect labor in thought, love labor in action, and constantly promote the spirit of labor in the practice of realizing personal ideals. "Life is hard work, hard work is not enough", this sentence warns most young people that happiness comes from labor, and a happy life is created with both hands. College students should embrace a bright future and realize the value of life through hard work. In addition, the Party Central Committee called on young college students to "support the Chinese dream with labor." To establish correct labor values needs to rely on labor education classrooms and practice platforms. Teachers systematically explain the era connotation and value system of Marxist labor values, and actively guide young students to closely combine labor values with personal future, social progress, and national development.

The concept of labor comes from practice and returns to practice. In the practice of labor, we consciously pursue the concept of labor values, give full play to the educating function of labor education, and deeply understand the intrinsic value of concept of labor. The application of artificial intelligence in production simplifies complex labor, replaces simple labor, and requires precise data. The professionalism of production labor is reduced, and the status of laborers is weakened. Intelligent production has an impact on simple labor. The labor of workers is mainly reflected in the control of machines and the application of data software. Electronic homework and paperless office weaken the sense of time and space in labor relations, and at the same time, increase the sense of distance between laborers. Responsibilities in education, and on this basis, strive to build a "1+x" teaching staff team, which consists of professional teachers, ideological and political teachers, general education teachers, community teachers, class teachers, etc. to form a labor education team.

Thirdly, higher vocational colleges can also include labor spirit, model worker spirit, craftsman spirit, etc. The effect of labor education in colleges and universities. Finally, strengthen financial security. To ensure the smooth development of labor education in higher vocational colleges, schools should also include labor education funds in the school's annual budget, based on sufficient financial support, to ensure the smooth development of labor education. Contemporary college students' study and grow in the world's unprecedented changes in a century, and their labor thoughts and behaviors are inevitably affected by the surrounding environment. To better implement the Marxist concept of labor and help college students establish a correct concept of labor, colleges and universities should attach importance to creating a campus atmosphere where labor is paramount. Labor, and promote the self-development of college students in labor.

### 3. CONCLUSION

To sum up, the Marxist concept of labor in the new era inherits and develops labor values, carries forward the labor spirit in traditional Chinese culture, highlights the dominant position of the people in practice, and fully affirms the practical value of strengthening and improving labor education in the new era. It plays a positive role in practicing the concept of labor value, promoting the all-round development of students, and maintaining social harmony and stability. Colleges and universities should follow the trend of historical development, seize the opportunity of teaching reform, persist, apply, and develop the Marxist concept of labor, explore effective ways to integrate the Marxist concept of labor into labor education in colleges and universities, and improve the labor spirit and labor skills of college students. Cultivate batch after batch of the most beautiful strugglers who are down-to-earth, love labor, and are good at labor for the socialist modernization drive.

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# On Organizing and Carrying out Theme Party Day Activities to Promote the Construction of Grassroots Party Branches in Colleges and Universities

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**Abstract:** The construction of the ideological and political system of continuing education and training courses in colleges and universities must follow the "opinions on strengthening and improving ideological and political work in the new era" issued by the Central Committee of the Communist Party of China and the State Council and implement the guiding ideology and principles of strengthening and improving ideological and political work in the new era. It is necessary to take ideological and political work as an important way of governing the party and the country, incorporate it into the training objectives and requirements of continuing education and training in colleges and universities, and continuously improve the quality and level of ideological and political education. The ideological and political reform of the curriculum and the renewal of the continuing education system of subject teaching coincide with each other in terms of concept, goal, path, and results. In terms of the evolution pattern of the educational law, based on the development needs of a complete life subject, it can fully stimulate the life development potential of the trainees in personal political cultivation, professional cultivation, and social life, and finally achieve the overall goal of lifelong development and comprehensive education.

**Keywords:** theme party day, grassroots party branches, organizing and carrying

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## 1. INTRODUCTION

The "Constitution of the Communist Party of China" stipulates: "The party's grassroots organizations are the party's battle fortress in the social grassroots organizations, and the foundation of all the party's work and combat effectiveness." "The party branch is the party's basic organization, responsible for directly educating and managing party members. , Supervise party members and organize the masses, publicize the masses, unite the masses, and serve the masses." The party day activity system is a basic system for the life of the party's grassroots organizations. ensure. The theme party day activities carried out by grassroots party organizations in colleges and universities are an effective way to strengthen the party building work in colleges and universities and the education and management of party members in the new era. Teacher-student relationship, an effective way to enhance the appeal, cohesion, and combat effectiveness of grassroots party organizations.

Only when the theme of the theme party day activities is clear and focused, can most party members be actively participated, willing to practice and experience, be enlightened and educated in the activities, and receive due effectiveness. If the theme of the event is not clear and unattractive, if the theme party day is treated as a welfare day or a sightseeing activity, it will fall into the quagmire of formalism, which will inevitably affect the educational effect of the theme party day. The content of the theme party day determines its effectiveness to a large extent. The theme party day of the branch must highlight the party flavor, and the study and implementation of Xi Jinping's new era of socialism with Chinese characteristics should be an important content of the theme party day.

Although some branches carry out theme party days, although the theme is clear, the content of the activities is not designed and thought around the theme. For example, learning documents is simply reading the documents, and the special seminars are not fully prepared. To put it bluntly, watching red movies is nothing but watching, and the educational function of the activity cannot be fully utilized. Some content is completely off topic, lacks political and ideological content, and turns into pure business communication or entertainment activities, without enlightenment and education, and completely loses the "party flavor".

19th National Congress of Wishes and Blessings collection activities: Organize teachers and students to write down on paper their blessings to the Party and the motherland at the 19th National Congress of the Communist Party of China, changes around them in the past five years, or expectations in their hearts Changes that will happen around the next five years, etc., and small papers are pasted on the publicity display boards, implying that everyone participates and "adds the best" to the 19th National Congress of the Communist Party of China. At the same time, the members of the party branch collected the blessings to the 19th National Congress of the Communist Party of China and the inspiring words of working hard for the realization of the Chinese dream recorded by the branch members, teachers, and students in different places on the campus. Forge ahead" highlights video, publicized on various network platforms.

## 2. THE PROPOSED METHODOLOGY

### 2.1 Establish and improve the quality assurance mechanism for the theme party day activities of party branches in colleges and universities.

Party branches of colleges and universities carry out themed party day activities, and there are situations such as emphasizing form over content, over results over process, over planning over summarization, over leaders over details, etc., resulting in low quality theme party day activities and low satisfaction of participants. Therefore, in the process of carrying out theme party day activities in colleges and universities, it is necessary to strengthen the organizational system of activities and strengthen the brand building of theme party day activities, to improve the attractiveness, appeal and combat effectiveness of grassroots party branch activities. Set up a political theory lecture group, regularly carry out themed lecture activities, and organically combine and complement each other with ideological and political courses. Adopt a form that teachers and students like to hear and see, combine party and government policies, current affairs hot spots, theoretical policies, strengthen the correct understanding of the country's development trend, era responsibility and historical mission, lofty aspirations and down-to-earth, sing the main theme, transmit positive energy, and strengthen ideological politics. The theoretical basis, establish firm ideals and beliefs, and enhance the power of belief.

At present, people are during major changes unseen in the world in a century. Facing the complicated international and domestic situations, colleges and universities must comprehensively strengthen party building, deepen the implementation of the general requirements for party building in the new era, and ensure that the party must manage the party and strictly govern the party. The party fell to the ground. Grass-roots party branches are the foundation of all the party's work and combat effectiveness, and undertake the tasks of development, education, and management of most party members. Whether their work is carried out normally is the key to whether party members can maintain their advanced nature. To comprehensively strengthen party building, we must consolidate grassroots party building work, standardize, and strengthen the construction of grassroots party organizations.

The theme party day is an important carrier of grassroots party building work. Through the development of innovative theme party day activities, it can promote Xi Jinping's new era of socialism with Chinese characteristics in a rich and flexible way. "Like the 19th National Congress, I love the theme of the 19th National Congress of the People's Republic of China: "Looking at the glory of the motherland and practicing the trip to strengthen the country" The theme of the 19th National Congress of the Communist Party of China has ignited the youthful dreams of every branch member and encouraged contemporary college students to build a beautiful motherland. Ideals and enthusiasm are transformed into practical actions to study hard, enhance skills, and serve the motherland, and strive to be outstanding young people with ideals, abilities, and responsibilities. The party branch of the institution must always serve the purpose of serving the growth and success of students wholeheartedly, focus on improving the service awareness of party members and cadres in the institution, enrich the ideological and political

education content of student party members, and promote the scientific and orderly development of school careers.

### 2.2 Thoughts and Measures on the Innovation Mechanism of Theme Party Day Activities of Grassroots Party Branches

It is an effective way to innovate the grass-roots party building work in colleges and universities, which is conducive to enhancing the vitality of grass-roots party organizations in colleges and universities, realizing resource sharing and complementary advantages of party branches, and achieving mutual promotion and common development. Raise the target. The joint construction of party branches should be based on their own characteristics and advantages, identify the joint points of both parties, and carry out activities creatively. On the basis of ensuring that the content of the theme party day activities is substantial, and the results are obvious, multi-dimensional innovations are carried out to highlight the characteristics of the activities. Establish brand awareness, do enough homework on local characteristics, school characteristics, and branch characteristics, and realize "one unit, one brand, one branch, one characteristic".

Make themed party day activities more down-to-earth, gather popularity, and be more political, contemporary, principled, and combative, continuously stimulate the organizational vitality of grassroots party branches, stimulate the enthusiasm of party members to participate, and improve the quality of themed party day activities. The theme party day is an important organizational way of life inherent in the grassroots party branch every month. It needs careful planning, careful organization and preparation, and careful consideration of all links to ensure the quality and effect of the event. The school party committee should strengthen the unified leadership of the theme party day activities, take the theme party day as a powerful starting point for strengthening ideological party building, political party building, and institutional party building, and put forward specific guiding opinions on the development of the theme party day activities of grassroots party branches, and to the annual theme party day carries out overall planning. Especially for some important time nodes and months when major events occur, the theme can be uniformly specified, and others can be arranged by themselves.

It is necessary to clarify the responsibility of the party branch secretary's primary responsibility for implementing the theme party day activities and include it in the branch secretary's debriefing evaluation and assessment. In normal times, it is necessary to strengthen the training and guidance of branch secretaries to carry out themed party day activities and improve their professional capabilities. This event provides a good platform for everyone to learn red knowledge, so that everyone can truly feel the country's vigorous development, effectively enhance the patriotism and ideological and moral qualities of contemporary young college students, and consciously and actively contribute to the realization of the Chinese dream. The party spirit and sense of purpose of all members of the party branch have been strengthened, the vanguard and exemplary role of the Communist Party members has been brought into play, the advanced nature of the Communist Party members has been maintained, and the cohesion of the party branch has also been further enhanced in the activities. Integrate various resources inside and outside the school, build a party day activity base, and create a "practice +" model.

Combined with the current party history learning and education, fully tap the local red educational resources of the school, actively open a "second classroom", and continuously expand the carriers and channels of themed party day activities. Let the theme party day activities go out of the classroom, out of the school, into the society, and be more down-to-earth. Adopt 4 main forms of activities: entertaining, on-site practice, conference and discussion, and interactive experience. It is necessary to borrow various new media resources in the "Internet +" era to carry out activities. The third is to establish and improve the system of theme party day activity plan reporting, attendance registration, activity record management, publicity, and promotion, and use the system as a starting point to strictly manage the theme party day and promote the implementation of the system.

For the time, duration, participants, and hanging of the party flag of the theme party day, all grassroots party branches, based on implementing the unified regulations of the school, add innovative optional actions according to the actual situation to ensure that the theme party day activities are not out of shape. Party day activities are a platform for college student party members to receive education, a stage for strengthening their quality, and a stage for displaying their image. Only by adhering to the unity of content enrichment and novel form can the smooth operation of activities be effectively guaranteed. The reason why this event has achieved good results is that it adheres to the selection of topics and innovates the form. It not only adheres to the basic principles of party building work, but also develops the content of activities; it not only inherits the fine traditions of party building work, but also innovates activities. form, and use the constantly developing and innovative party building theory to guide the development of party day activities.

### 3. CONCLUSION

Party building in the new era has put forward higher standards for us. We need to combine the requirements of the times and the reality of party members to further clarify the theme, grasp the content design, do a good job in the innovation of activity carriers, and meticulously draw the themed party day activities "meticulous painting" concentrates on making the themed party day activities practical, successful, and new, so that the themed party day activities can play a greater role and effect. Provide favorable conditions for innovating theme party day activities from the aspects of strengthening leadership, improving system, improving mechanism, implementing safeguard measures, strengthening supervision and management, etc., so that theme party day becomes a platform and main position for party members to exercise party spirit, learn and exchange, and comprehensively improve grassroots party Organizational combat effectiveness and vitality.

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# Laboratory Safety and College Students' Psychological Education Innovation Training Mode and Effect Analysis

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**Abstract:** School laboratory safety education is an important link in the cultivation of talents in colleges and universities. Facing the new situation of the reform of large-scale enrollment and training, the electrical and electronic teaching experiment center of xi'an jiaotong university has summarized years of experience in safety education, making full use of network means and teaching platforms to study college laboratory experiments. The importance of laboratory safety education and training is analyzed, the characteristics and existing problems of university laboratory safety education and training are analyzed, and a new model of university laboratory safety education and training is created. The new education model has various forms, wide coverage, clearer rights, and responsibilities, strengthens the safety responsibility awareness of experimenters, improves the safety management level of laboratories, promotes the construction of laboratory safety culture, and provides a solid guarantee for the normal operation of schools and scientific research work.

**Keywords:** Laboratory safety, psychological education, innovation training, effect analysis

## 1. INTRODUCTION

University laboratories are an important place for basic practical teaching and scientific research, an important platform for cultivating college students' basic practical ability and innovation ability, and an important guarantee for creating first-class universities and first-class disciplines. With the innovation and reform of experimental teaching and the continuous development of scientific research, the opening degree of university laboratories is getting higher and higher, and the emphasis on laboratory safety and the cultivation of college students' laboratory safety awareness have become an important guarantee for the safe and stable operation of university laboratories and the sustainable development of universities. A safety accident in a university laboratory, whether it damages the equipment, burns down the experimental environment, or even causes casualties, will bring serious losses to the country and society. It will not only interfere with the normal teaching and work of the school, but also affect human health. Hazard to life safety.

An explosion occurred in a chemical laboratory of a university in Sichuan during an atmospheric fluidized bed coating experiment, injuring three students: a college student in the United States died when his hair was winched into the lathe while operating a lathe in the mechanical room of the laboratory building; a university in Northeast China 28 teachers and students were infected with brucellosis due to animal experiments. These bloody lessons further illustrate that carrying out laboratory safety education and training and emphasizing the importance of safe experiments is a necessary way to ensure normal work and teaching order and personal safety. Facing the increasingly complex laboratory safety education environment, colleges and universities are constantly exploring various ways and methods to carry out laboratory safety education, such as: incorporating laboratory safety education into the freshman admission education, conducting laboratory safety lectures, and holding safety knowledge contests, increase laboratory safety publicity through campus safety broadcasts, open up an experimental safety column in the special issue of the school newspaper, and compile the "experimental safety manual" and so on.

However, limited by factors such as insufficient educational resources, for low-grade students, there is no systematic laboratory safety knowledge education, insufficient professional knowledge support, and a comprehensive understanding of the laboratory structure and performance of related instruments, which cannot form a mature laboratory. In the face of unexpected laboratory accidents, timely and effective measures cannot be taken; senior students are in the state of independent experimental research most of the time, lengthy and complicated experiments make the laboratory safety of senior students consciousness is in a state of fatigue, which increases the chances of laboratory accidents.

Many colleges and universities are carrying out multi-disciplinary comprehensive education models such as arts, science, technology, agriculture, and business. Laboratory safety knowledge training can improve the safety awareness of laboratory personnel and enhance people's ability to deal with sudden safety accidents. Laboratory safety knowledge training is an experimental It is an indispensable part of indoor safety management. However, most colleges and universities in our country basically carry out safety education for students by carrying out safety knowledge lectures at the early stage of entering the school, and laboratory safety is only explained as a chapter. At this time, the freshmen who have just entered the school have no contact with various work in the laboratory and have no clear conceptual guidelines for laboratory safety. The effect of safety education achieved by only teaching and explaining with pictures and texts is also conceivable. Therefore, a complete laboratory safety knowledge training system is necessary.

## 2. THE PROPOSED METHODOLOGY

### 2.1 College students' psychological education innovation training innovation

Coupled with the fact that interdisciplinary research is one of the most important and mainstream development directions of current university research institutions, this requires experimenters not only to master the original professional experimental safety guidelines, but also to keep in mind the experimental safety regulations in various fields involved. To

avoid accidents caused by unskilled operation and insufficient risk foresight ability. However, if the knowledge of safety experiments in all fields is uniformly instilled in every experimenter, not only will it not attract more attention, but it will put more pressure on everyone. Therefore, for a university, in the face of a wide coverage and a wide variety of experimental management, the teaching content of safety education should also be adjusted according to different research directions. In the era of rapid network development, to expand the radiation surface of laboratory safety education and comprehensively improve students' laboratory safety awareness, the laboratory conducts laboratory safety education activities on the platform of the official network and WeChat public account of the electrical and electronic teaching experiment center.

The college conducts laboratory safety inspections from time to time, displays the safety inspection results through the network platform, urges students to abide by the laboratory use guidelines, standardizes experimental operations, and improves laboratory safety awareness. At the same time, use the network platform to broadcast major laboratory safety accidents in universities across the country in the form of videos and pictures, increase students' sensory awareness of laboratory accidents, further strengthen students' laboratory safety awareness, and improve students' ability to deal with emergencies. Everyone's experimental work is different, and the degree of safety education they need is different. On the other hand, there is a large turnover of laboratory personnel, frequent use of instruments, and everyone's familiarity with experimental operations is different. It takes a lot of energy for the laboratory administrator to manage and guide them one by one, and the effect is not good. Therefore, it is necessary to have a complete training system and comprehensive training materials to ensure that the experimenters can receive sufficient experimental safety training in every link.

Colleges and universities are important places for teaching and educating people and scientific research. They are places where teachers and students concentrate on learning, teaching, and scientific research activities. Their environment and the safety of life and property are widely concerned by all walks of life and thousands of households. Especially for the students who have gone through ten years of hardship and finally entered the gate of colleges and universities through their own efforts, they bear the trust of the family and the responsibility of the society, shoulder the heavy responsibility of the country and the hope of the nation, and the whole society has the responsibility and obligation to protect their safety and ensure their healthy growth. If life is not guaranteed, how can we talk about education. Colleges and universities must enhance the sense of mission and urgency to do a good job in the comprehensive management and stability of school safety, strengthen the education and training of campus safety, especially laboratory safety, and earnestly assume the responsibility of protecting the lives and property of teachers and students, and create a safe environment for colleges and universities, civilized, harmonious and stable environment. Use the network to establish a specific laboratory safety education assessment test question bank according to the characteristics of each laboratory and formulate a corresponding assessment system. Before the start of each semester's experimental course, students must participate in the laboratory safety education series of lectures, and then log in to the test question bank for the test. Only those who pass the assessment system can gain access to the laboratory, and the importance of laboratory safety will be

deepened in students' minds in the form of assessment to ensure the safety and stability of laboratory work.

## 2.2 Undergraduate Psychology Applied to Laboratory Safety

The establishment of a stage inspection and reward and punishment system, the rapid progress of research in colleges and universities, makes the content of experimental teaching and experimental research updated rapidly. Discover the existing safety hazards and commend and encourage the participating units and individuals who earnestly record the safety experiments, do a good job in safety inspections, and standardize the operation experiments. Safety education is an important part of campus safety culture construction. Laboratory is an important place for teaching and scientific research on campus. Its safety culture construction is the soul of campus safety culture. Lessons, formed in the practice of laboratory safety management, are a comprehensive reflection of the safety awareness, attitude, quality and emergency response capabilities of teachers and students on campus, and their importance and necessity are becoming increasingly apparent.

For comprehensive colleges and universities, each laboratory has its own working characteristics. In addition to basic safety training, corresponding safety education and training programs should be designed in combination with the characteristics of each major and experiment. First, according to the identity and research level of the experimenters, the safety education level is divided into three levels: basic, professional, and research. The basic level mainly includes the most basic laboratory safety knowledge and is mainly aimed at safety education and training for freshmen and basic experimenters. Professional level mainly involves the requirements of experimental courses and experimental teaching of various majors and is mainly aimed at safety education and training for undergraduates, senior students and professional experimenters. As the leader of cultural inheritance and innovation, colleges and universities must make a difference in the construction of campus safety culture and must assume the role of leader.

Carry out safety education and training for students, so that they have the quality of safety culture, become qualified builders and leaders of social development, and help to improve the safety culture level of the whole society, and become disseminators of safety culture in the whole society. To become a leader, colleges and universities must build their own campus safety culture environment, form a complete safety culture system, and become a model for all walks of life to learn from. All professional experimenters must fully grasp the basic accident prevention measures, set an example and use the laboratory strictly in accordance with the laboratory management regulations; learn scientific and reasonable laboratory layout, and scientific regional distribution is conducive to the installation and pollution of various safety protection facilities the quality of the laying of water, electricity, gas and other pipelines and the level of safety protection facilities will affect the use, extension, transformation and other activities of the laboratory; related majors must learn gas explosion, poisonous and harmful gas diffusion, corrosive self-protection and protection of social resources in hazardous situations such as liquid hazards.

### 3. CONCLUSION

This paper conducts in-depth research on the working methods and mental health construction of laboratory safety education and training in colleges and universities, emphasizes the importance of laboratory safety education and training in colleges and universities, analyzes the characteristics of experimental education and research work in detail, and establishes independent flexible, innovative, and comprehensive safety training work mode. Experimental personnel can choose corresponding safety education and training methods according to their own professional research conditions to improve safety skills and cultivate safety experiment literacy. At the same time, stricter management training requirements are put forward for managers. The safety management mechanism of discipline laboratories needs to be continuously explored and improved. Therefore, laboratory managers need to continue to learn and improve, and jointly maintain a safe and orderly scientific research environment in universities.

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# Design of Rural Tourism Ecological Service System Based on the Background of Smart Tourism

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**Abstract:** Study the innovation of rural self-development service system, effectively protect, innovate, and continue rural natural culture and traditions. The sustainable rural tourism ecosystem was established through user tourism experience, optimization of service process, brand building and emotional design. By analyzing the pain and opportunity points of the experience, a service system is constructed that includes services, information, funds, and other content. To enhance brand attraction, improve service contact points, and promote folk culture, design plans for tourism service platforms, public facilities, and characteristic gifts are output, in order to enhance the rural tourism service experience and spread the value of rural culture.

**Keywords:** Rural Tourism, Ecological Service System, Smart Tourism

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## 1. INTRODUCTION

In the era of universal travel and tourism, the tourism industry has never been at the forefront of economic development as it is today. Tourism resources, tourism facilities, and tourism services are three essential elements for the survival and development of the tourism industry, involving six links: tourism, accommodation, transportation, entertainment, catering, and shopping. Today, with the rapid development of the Internet industry, the tourism industry takes Service design as the exploration area and innovation method, and it has become a new design idea and trend to build "smart tourism" around facilities, services, and resources. In economics or management, service is the foundation of interest exchange and a new perspective of value creation. Through the interaction between service providers and service recipients, economic value can be created, especially in the construction of service systems from the "front-end" to the "back-end", by planning each contact point in the service process, new service exchange and value relationships can be created.

With the expansion of the boundary of Service design, the field of design has developed a product service system under the connotation of Service design, which fully realizes the informatization and intellectualization of rural tourism from tourism operation management, tourism destination marketing, tourism services and other aspects, so that tourists' various tourism needs can be met, and at the same time, tourism authorities, rural tourism enterprises a new development model for rural tourism that provides intelligent support from stakeholders such as rural tourism operators. Many scenic spots in China have already carried out smart tourism construction, introducing modern information technology into the operation and management of scenic spots, and optimizing the tourist experience. In summary, the era of smart tourism has arrived, and rural tourism is developing in the direction of intelligence. Government departments need to attach importance to it, strengthen guidance for tourism enterprises, and promote the healthy development of rural tourism industry.

Based on the service system design in the context of smart tourism, we should also consider integrating the entire innovative design process with design thinking, and pay more attention to system design, service design, experience design

and other aspects. Through the planning of service blueprints, the integration of emotional design, product design, visual packaging, etc., the overall efficiency of the tourism service process, user usability, user experience satisfaction, and user loyalty after use are greatly improved, thus shaping a sustainable development service chain with better user experience and better service quality. With the development of information technology related to rural tourism and the spread of global tourism, rural tourism not only needs to provide unique tourism projects and authentic local customs, but also needs to strive to build a smooth tourism process through overall planning, improve a good tourism experience, and promote the sustainable dissemination of culture.

The tourism industry is an important component of modern service industry, and service is the core element of the tourism industry. Service quality is the fundamental factor determining the sustainable and healthy development of rural tourism industry. At present, the facilities and equipment for intelligent services in rural tourism in Qingdao are not sound enough to meet the increasing demands of rural tourists for the level of intelligent services in rural tourism, and there is a trend of increasing supply-demand contradictions. The intelligentization of rural tourism still faces many difficulties, mainly reflected in the single intelligent product, outdated tourism promotion and marketing methods, lack of information technology talents, and low service quality of tourism platforms.

## 2. THE PROPOSED METHODOLOGY

### 2.1 Smart Tourism and the Wisdom of Rural Tourism

Users can choose the corresponding gaming theme according to their preferences. After successful ticket purchase, personalized commemorative tickets will be printed on the terminal based on the electronic QR code, with a route map, scenic spot introduction, and reminders on the back. This diversified gaming theme and commemorative ticket strategy corresponds to the diverse and personalized needs of customers, with the goal of meeting the personalized needs of tourists, achieving personalized gaming routes, service methods, and service content, thereby effectively improving user experience and enhancing passenger satisfaction. As a new design form, service design can be understood as the

design of "organization" and "relationship". It aims to provide users with high-quality service systems and experience processes by integrating various related elements, especially focusing on the interconnection among people, things, environment, behavior, and society in the system.

In the research of rural tourism Service design, the intervention and integration of Service design help research or design focus on the research from individual research to system research, from function research to experience research, from use mode research to service process research, based on the user journey integration of "people, scene, process", through the innovation of service mode and system architecture the optimization of service processes and touchpoints. Only by continuously improving the market coverage and share of rural tourism in Qingdao, expanding the market influence and reputation of rural tourism, can we create a rural tourism brand with domestic influence. However, the marketing strength of rural tourism in Qingdao is not enough, especially in the aspect of intelligent marketing, which has not formed a distinctive brand of rural tourism that is very popular in China. In the process of rural tourism intelligence, the rural tourism industry needs to take the urban residents around the scenic spot as marketing objects, build an intelligent marketing system through modern information technology, and expand marketing channel such as mobile phone terminals and network terminals.

In the architecture of smart marketing systems, it is necessary to use sensing technology, internet, QR code, VR technology, etc. to transmit rich rural tourism information to potential tourists, change traditional marketing models, and improve marketing efficiency. Through VR technology, sensing technology, etc., tourists can simulate and experience the tourism projects in the scenic area, including bungee jumping, rafting, etc., to obtain thrilling and thrilling experiences, and make tourism decisions. Only services that rise to the level of humanistic care can capture the hearts of tourists. This is also the core concept of creating "smart tourism", rather than blindly emphasizing advanced technology and high-quality interfaces. In a 2016 TED speech, Xin Xiangyang said, "A very important concept in experience is Co creation, where users and businesses work together to create their own experiences. Any experience is the result of the interaction between the customer's physical and mental feelings and the event. By combining online popularization education with offline participation experience, businesses and tourists work together to create a brand-new user experience.

## 2.2 The Smart Development Path of Rural Tourism in the Era of Smart Tourism

The rural tourism service system is a relatively large organizational structure. We should be good at exploring the integration of rural culture, tradition, heritage and other resources with the tourism needs of modern residents and combine it with modern Service design thinking to form a new innovative model or system architecture. On the one hand, we need to strengthen the integration of resources in the process of rural tourism and enhance the synchronous development of rural tourism with cultural tourism, ecological tourism, and leisure vacation tourism. We need to integrate scenic area strategies with hotel inquiries, folk dissemination and social interaction, business models, and cultural gift development. To improve the level of intelligent development of rural tourism, it is necessary to have authentic and accurate massive raw information data as support.

Therefore, the relevant tourism authorities in Qingdao should take the lead and cooperate with other relevant government management departments, rural tourism communities, and rural tourism operators to collect and uniformly store comprehensive information and data related to rural tourism management, scenic spot resources, and previous year's tourism information, to build a Qingdao rural tourism information database. The way to collect the above rural tourism data information is to summarize relevant information regularly and comprehensively from various departments. The rural tourism smart management system is established based on a smart management platform, covering various management contents. It can fully apply internet technology and perception systems, comprehensively integrate relevant information of the rural tourism industry, improve perception speed, strengthen supervision and management, and fully leverage the advantages of rural tourism resources.

The smart management system can closely integrate the rural tourism industry, communities, and government management departments. The three can communicate and interact through the smart management system and provide accurate tourism services to tourists based on their current needs for rural tourism, comprehensively improving the scientific decision-making and management. Re package local specialties to create Longde County's own brand. For a long time, simple goji berry farmers have produced most of their goji berries and can only sell them as semi-finished products, earning only meager profits themselves. By utilizing internet technology and integrating packaging design and promotion channels, the added value of goji berries can be increased.

From the user's point of view, describe the user's experience in rural tourism services in the form of narrative stories, display in the form of visual graphics, find out the user's behavior, needs, pain points, good points, etc. in the whole use process from the user's journey, carry out service process and experience design for different service contact points of target users, and extract optimization points and design opportunities in products or services. Tourism information consulting services generally include tourism consulting service centers, tourism service hotlines, tourist service centers, tourist distribution centers, tourism information touch screens, tourism guidebooks, etc.

After arriving at rural tourism destinations, tourists urgently need information about various aspects of the destination, to provide scientific basis for the specific organization of tourism activities. Therefore, tourism consultation service centers should be established in major rural tourism areas of Qingdao, effectively integrating tourism information consultation with tourism services. Based on tourism consultation service centers, the tourist service centers of each scenic area and the consulting services of rural tourism enterprises should be integrated to provide comprehensive tourism information consultation services to tourists.

## 3. CONCLUSION

Service design provides users with satisfactory service experience by integrating the association, structure, and process of various elements in the system. As a new perspective or idea of design research, tourism design in the context of "Internet+" should make full use of the convenience provided by advanced Internet technology, combine online interaction and offline activities orderly and effectively, and take advantage of regional and national characteristics to vigorously promote the culture with national characteristics, at the same time, explore the available points

of culture, convert them into economic benefits, and promote the development of rural economy.

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# Challenges and Innovations Faced by College Students' Ideological and Political Education Under the Environment Of "Micro-Public Opinion"

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**Abstract:** In the process of ideological and political education for college students, public opinion plays a very important role. Public opinion often plays a guiding role, so the public opinion students hear will determine their thinking to a certain extent. With the development of the Internet, public opinion is no longer a macro concept, but has become more microscopic. In the "micro public opinion" environment, more and more public opinions have begun to form. The development of two micro-ones and the surge of users have led to the diversity of public opinion. Therefore, many campuses have begun to address the impact of "micro-public opinion" on students' ideological and political education and formulate relevant strategies to address the challenges. The ideological and political education of college students also has very important practical significance.

**Keywords:** Ideological and Political Education; Micro-Public Opinion

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## 1. INTRODUCTION

With the continuous advancement of my country's economic development process, a new generation of college students is increasingly taking on the important role of promoting social development and progress. To effectively cultivate college students with all-round development of morality, intelligence, physique, art and labor, major colleges and universities should vigorously carry out comprehensive quality education work, and constantly improve the educational knowledge structure system, so that the new generation of college students have various skills to adapt to social development and give full play to their innovative and creative abilities. Reasonable implementation of comprehensive quality education can not only help college students to lay a solid foundation in the basic knowledge and ability to adapt to society, but also effectively improve their psychological quality. In addition, the work of comprehensive quality education must firmly grasp my country's educational policies and concepts.

The network environment we are familiar with is virtual and open, and there are many uncertain factors in it. For example, students do not know who the teacher is, and the teacher does not know how the students are learning. The two sides seriously lack the basis of mutual trust in teaching; The second point is that the service objects of distance education are complicated. If teachers and students do not meet each other, they will naturally not be able to get close. If things go on like this, the relationship will naturally become alienated. To adapt to the development of socialism, colleges and universities must adapt to the needs of their own development, and actively carry out ideological and political education activities for innovative development. Under the background of the Internet age, the public opinion environment will have a serious impact on the ideological and political education in colleges and universities, and the ideological and political education in colleges and universities will face many problems and challenges, so innovative research has important value and importance. This article makes a targeted strategy discussion based on the challenges of ideological and political education that arise.

The "micro-public opinion" education method can have a timely release method, and at the same time can ensure free communication and socialized interpersonal relationships. These situations have enriched the main content of online ideological and political education on university campuses, and at the same time. It also proposed a variety of educational methods and educational means, which improved the pertinence and appeal of the network ideological and political education. According to the survey, after the advent of the media age, the initial user scale in my country has directly exceeded 500 million, and the usage rate of software such as Weibo and WeChat have reached about 85%. Among these groups, college students account for more than 70%. In terms of age group, more than half of the users are 19-30 years old, which shows that "micro-public opinion" has posed a strong challenge to the traditional ideological and political education model for college students. And at this stage, the huge deterrent force issued by "micro-public opinion" has brought serious challenges to the ideological and political education of college students.

College students do not have a comprehensive understanding of comprehensive quality education. Most college students have low ideological and political qualities, and their political concepts are not clear enough, they lack ideals and goals, and they are more inclined to pragmatism. Secondly, most college students focus on asking for money and do not pay attention to credit, so they cannot follow the pace of social development, and may even be eliminated by society. In addition, some college students have misbehavior and vulgar language, unable to communicate and communicate with other people normally, selfish, and not cooperative. Even effective college students have extremely poor physical and mental qualities, and their physical condition is not good. They cannot survive in a difficult environment. They will give up once encountering difficulties, lacking the perseverance and spirit to face difficulties.

## 2. THE PROPOSED METHODOLOGY

### 2.1 Analysis of the Influence of "Micro Public Opinion" on College Students' Thoughts

Cultivating students' political literacy is the most important goal of modern political education, and it is also an important prerequisite for the reform of the modern political education system. It lays a good foundation for its future development; finally, the quality of college students' political literacy also has a profound impact on their personal psychology and social moral literacy, and cultivating their political literacy is actually an effective way to cultivate their good psychological literacy and social moral literacy. The construction of a "micro public opinion" environment is mainly based on the WeChat platform, creating a public opinion atmosphere within a specific audience, and carrying out public opinion activities.

With the help of the WeChat platform, modern young college students can discuss problems and phenomena in life, learn and research interpersonal relationships, have a certain influence and sustainability, and have varying degrees of impact on social and cultural construction. Under the social background of the new era, through the analysis of WeChat communication efficiency and user characteristics, WeChat is not only the main construction platform for the "WeChat public opinion" environment, but also an important way for college students to generate and disseminate public opinion. As a convenient communication and interaction platform, WeChat has a strong relationship and characteristics with young users. WeChat circle of friends and WeChat official account are effective ways to disseminate information. The campus environment "micro public opinion" has a wide audience and a strong ability to spread public opinion.

After long-term development, university campuses have long used teaching as the main means and assisted the development of ideological and political teaching content in the form of seminars, discussions, and social practice. Therefore, ideological, and political education in university campuses still needs to adapt to social development. In the "micro-public opinion" environment, it is the main way to improve students' ideological and political education through bold common sense and innovation. Change the concept of personnel training in time to provide effective theoretical support for the smooth development of comprehensive quality education. In terms of education, colleges and universities should always adhere to the goal of cultivating social talents with all-round development of morality, intelligence, physique, art, and labor. Establish the correct concept of personnel training to promote individualized development of students; when carrying out education work, we should pay attention to the practicality and scientific nature of the curriculum, link it with human geography, and cultivate the cooperative relationship between student teams, not only we should pay attention to the professional knowledge level of students, but also pay attention to their overall quality level, actively expand students' horizons, create a good development space and imagination space for them, and enhance students' initiative in learning and thinking.

### 2.2 Exploration of the path of ideological and political education in universities and colleges under the environment of "micro-public opinion"

Carry out "network-based learning" activities to strengthen political practice ability: From the perspective of online public opinion, "network-based learning" activities that share educational resources and jointly promote educational development have made a huge contribution to improving college students' political literacy. Therefore, carrying out a variety of "network-based learning" activities, optimizing the content of activities, and opening the connection channels of educational resources inside and outside the school are the most important strategies for cultivating college students' political literacy from the perspective of online public opinion. Campus culture construction is a means for schools to give full play to students' ingenuity, communicate actively, learn from each other, participate together, create a good campus atmosphere, and then return to the learning process of students.

Under the influence of public opinion, students are affected by the inertia of Internet thinking, forming a copy-and-paste mindset. This mindset is difficult to create independently. In this way, it is difficult to build a campus culture. Without a good campus atmosphere, students' failure to integrate into it will seriously affect the development of students. The dissemination of public opinion on campus has its own development law. Many public opinions on the campus network are also a combination of most people expressing their thoughts and emotions in response to the current social phenomena and problems in society. At the same time, these are also several different stages of website development. However, on online platforms such as Weibo and WeChat, the use and transmission of information is not hindered, and at the same time, it is rarely controlled by politics. Therefore, "micro-public opinion" is an important platform for the growth of public opinion among Internet users at this stage.

Before the implementation of comprehensive quality education, its specific framework should be perfected, and the traditional teaching methods and contents should be changed. Comprehensively consider the social development trend to determine the characteristic majors of colleges and universities, and scientifically arrange the relevant content of professional courses. While setting up professional courses, the basic knowledge of professional courses should also be placed in a prominent position, and the content of basic knowledge should be reflected in the textbooks of professional courses, so that the textbooks can become more scientific and complete, so that students can fully grasp them. The importance of college students' political practice ability is mainly reflected in the following three points: First, the so-called "a journey of a thousand miles begins with a single step", college students can only get out of the ivory tower and enter the complicated society only if they have strong political practice ability. And use the political knowledge you have learned to restrain your behavior and reap a better life. The second point is that college students have strong political practice ability, so that it is possible to correctly understand the content of ideological and political teaching in the shortest time, and it is easier to give full play to their own advantages and improve ideological and political awareness. The third point is that political practice will have a very positive impact on how college students behave and treat others and can help them shape a better self. Under the background of "micro-public opinion", the innovation of ideological and political



education in colleges and universities should respect the main law of public opinion communication, correctly guide the public opinion of college students, pay attention to the changes of college students' life, and thought, and provide material and psychological help to students in need.

### 3. CONCLUSION

To sum up, education development has a very strong practical demand for college students' political literacy, political thought, and political practice ability. Based on the current development trend of education, the basic goal of ideological and political teaching in colleges and universities should be to cultivate college students' political literacy, thinking and learning styles, combined with the characteristics of Internet public opinion, with the development of the "micro-public opinion" environment, public opinion information is mixed, students browse various. It is easy to be affected by a large platform, which brings great challenges to the ideological and political education in colleges and universities. Therefore, educators must accept the challenge, use the form of "micro-public opinion" and combine new media to create a good learning atmosphere for students, so that students can identify false information, establish correct values, strengthen beliefs, and lay a solid foundation for future development.

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# Java Implementation of the All-round Collaborative Education Platform Based on Real-time Data Analysis Algorithm

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**Abstract:** This paper proposes a relatively complete multi-dimensional dynamic data mining system theoretical framework, constructs a multi-dimensional dynamic information representation model, establishes a time series mining model based on support vector regression machine, and a continuous input and output process neural network mining model. The new information teaching system with "multi-dimensional information processing and application in professional research" as the main structure has shown its advantages and characteristics in the current innovative education platform of colleges and universities in my country. This new information teaching system has played a positive supporting role in the development of relevant courses, innovative education platforms and students' innovative ability in colleges and universities.

**Keywords:** Online Platform Innovation, Targeted Teaching, Multi-Dimensional Information Data Mining, College Education

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## 1. INTRODUCTION

With the development of science and technology, the performance of sensors has been greatly improved, and various multi-sensor information systems for complex application backgrounds have emerged in large numbers. In a multi-sensor information system, the diversity of information representation, information [1] capacity, and information processing speed have greatly exceeded the capabilities of traditional information processing methods. Therefore, in recent years, a new discipline-multi-sensor data fusion technology came into being [2]. Abroad, PI, ESP-iSYS, Industrial SQL Server and InfoPlus. The 2l real-time database adopts the revolving door compression algorithm, and Intellution Dynamics iHistorian [3] adopts the revolving door and the dead zone limit two compression algorithms at the same time. The trend extraction algorithm is commonly used in the existing [4].

The sliding window algorithm and the extrapolated online data segmentation algorithm are the closest to meet the requirements of the above dynamic data flow trend analysis. However [5], the former algorithm needs to use a linear fitting algorithm to model each arriving data flow element. However, the increasing number of enrollments and the distribution of majors after enrollment have made the teaching management of colleges and universities [6] very difficult. Problems such as complex student organization, excessive teaching resources, and the increasing demand for online teaching by teachers and students in the school have also brought huge risks and challenges to the school's [7] teaching management system. Therefore, various information technologies are applied to speed up the improvement of the teaching management system. And innovation is imminent [8].

However, the increasing number of enrollees and the distribution of majors after enrollment have made the teaching management of colleges and universities very difficult. Problems such as [9] complex student organization, excessive teaching resources, and the increasing demand for online teaching by teachers and students in the whole school have also caused problems [10]. The school's teaching management system has brought huge risks and challenges. To realize the

modernization of school education has always been our pursuit goal. To promote the modernization of the school with the informationization [11] of education is our basic idea and practice of running a school. Through more than ten years of exploration and research, the school has gradually formed the basic characteristics of "digital campus, research-oriented school", from the construction of the basic campus network to the integration of disciplines and information technology [12].

Xia Xuehua conducted research on teachers' teaching design ability, and proposed to make full use of the current Internet technology and help teachers improve their teaching ability with the help of multimedia teaching methods. In 2008, Tang Huiyun [13] conducted research on improving teachers' teaching skills. The development trend is analyzed and explained on how to improve teaching skills. In a word, online teaching exists in every country in the world in its various forms [14], but with the different levels of economic and technological development of various countries, the ability and popularization scope of online teaching are also different. Due to the rapid development of educational technology, a new concept of effective [15] resource integration of modern educational technology and online teaching system has emerged. On the premise of the realization of system functions, the system should be able to support at least 5,000 users to access online at the same time. demand, the average response time is less than 0.6 seconds [16].

The software system should have high availability, be able to support different types of browsers for access, and the system should run stably to ensure that data is not lost or inconsistent due to accidental data [17]. Therefore, the traditional manual management mode is no longer suitable for the needs of multimedia classrooms in practical teaching. Due to such an objective situation [18], it is necessary to research, design and implement a WEB-based software management system, which can be combined with the current booming mobile Internet technology. Auxiliary multimedia classroom integrated management system [19].

Compared with the level of information representation, data fusion can be divided into three categories: data layer fusion, feature layer fusion and decision layer fusion. Feature layer

state fusion [20] is the joint identification of feature layers. Data compression technology faces two key problems: First, the compression algorithm must It can provide a high data compression rate to support the mass storage characteristics of real-time database; secondly, the real-time recording and query function of real-time database requires the compression algorithm to have good speed performance in both compression and decompression processes, especially in the decompression process. middle. They are actually pattern recognition problems. Artificial neural network has many advantages such as parallel distributed processing, self-adaptation, associative memory and so on.

## 2. THE PROPOSED METHODOLOGY

### 2.1 The Real-Time Data Analysis

#### Algorithms

Adaptive resonance theory (ART) is a method proposed by Stephen Grossberg of Boston University and his colleagues in the study of human cognition, which can realize self-stabilization and self-organization recognition of arbitrarily complex environmental input patterns. network system. The process of implementing the revolving door compression algorithm is shown in the literature. Among them, "temporary data set" refers to all data points between the previous reserved data point and the new data point. These data points are stored in memory as temporary data. Dynamic data flow The basis of real-time trend analysis is to divide the data stream in real time according to a certain statistical characteristic index, so that the data in the divided data segments obey the same statistical model, and the adjacent segments obey different statistical models.

Two positive feedback loops are respectively formed, and their function is to suppress noise and enhance useful signals. A subscripted letter next to each open circle neuron indicates that neuron and its output. The quantities and their relationships in Figure 2 are introduced in the order from bottom to top as follows:  $x_j$  is the  $i$ th component of the input external pattern, and each component corresponds to a neuron. Compared with the temporary data set method, the slope comparison method only stores the data values with the maximum and minimum slopes, and if the slope formed by the new data and the last stored data is between the maximum and minimum slopes, no other tests are required.

### 2.2 The All-Round Cooperation In Education

The design of the student management module is essentially to create an electronic file that records the complete natural information of the students through the teaching management system, including the students' academic information, life information and growth trajectory and so on. As a common technology in computer programming, Java technology not only inherits the characteristics of C++ well, but also reduces the incomprehensible content in C++ while improving its ease of use, such as multiple inheritance. Java language has many advantages such as reliability, practicability, portability and independence. In terms of the performance of the integrated platform system, full consideration is given to users outside the school (teachers, students and parents, etc.), and the use of the C/S architecture model is not suitable for application requirements. Generally, teachers and students outside the school can access the Internet through the Internet, and the C/S needs to install a terminal The program is out of date, and the B/S architecture mode has greater flexibility. Users can

browse the resources of the integrated platform as long as they enter the address.

The teaching effect management use case is composed of three functions: student evaluation management, supervision group evaluation management, and expert recommendation management; guidance group evaluation management is composed of supervision group evaluation browsing, supervision group evaluation addition, and supervision group evaluation update functions; student evaluation management is It consists of Student Evaluation Update, Student Evaluation Browse and Student Evaluation Add and Student Evaluation Delete functions. In the online video teaching function, teachers or system administrators can upload teaching videos, create a directory for all videos in the same course, and realize directory management of video files. At the same time, they can also modify the video directory. Teaching videos can be on-demand according to personal learning plans and learning needs, and related video resources can be inquired.

### 2.3 The Java Implementation of the Whole-process, All-round Collaborative Educational Platform

The test question bank TestPool is used to obtain the parameters of the test question bank and the selection of the test papers. The KnowledgePoints database is used to select the test papers and identify the knowledge points of the test questions. Secondly, it is necessary to control the authority to access the system and its related resources to ensure the correct access and security of the system; finally, it is necessary to ensure the reliable operation of various functional modules of the software system, and to adopt redundant technology for key data and program modules in the operation of the system. Software reliability technology is strengthened to ensure high reliability of system operation.

The system plans to use the Java Web technology platform, and the database uses the MySQL database system. One of the difficulties in the management of multimedia classrooms is the arrangement of class schedules. The traditional manual method is inefficient and prone to errors. A better method is to regularly obtain the latest class schedule information from the existing educational administration system of the university, and save it after adjusting and arranging in the system. Because the educational system is an independent application system.

The full name of the J2EE standard (Java2 Enterprise Edition), this technology can simplify complex issues such as the development, deployment and management of enterprise-level solutions, and it is usually used in N-level Web architectures. It is actually a technology platform for designing, developing and testing automation software. . The relationship between student management and basic data, students make relevant records due to various reasons, such as transfer to school, sick leave, etc., but the basic data cannot be changed, and the color difference will be realized for the student. Arguments are stored as the basic elements of a cell array in . Once it is used, it can only be the last item in the output parameter list. The function determines the number of variables to store, and the function can specify the output arguments of all known functions.

In terms of daily management, according to the school's requirements, students are strictly managed during their stay in school. Students must apply for entry and exit.

### 3. CONCLUSIONS

This paper combines the incremental recursive least squares regression parameter estimation algorithm with the generalized likelihood ratio change point detection algorithm, and proposes a real-time trend extraction algorithm for data streams. The algorithm fully analyzes the constantly arriving data flow elements, system feasibility and the design requirements of each module. The distributed design makes the teaching management system realized. Guarantee the high starting point of system performance, adopt object-oriented software development method in development technology, choose JAVA language, adapt to the use of multiple platforms, and the code generation efficiency is also relatively high.

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# Dynamic Evolution Model of Rural Tourism Trend Based on High-Resolution Remote Sensing Image Mining

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**Abstract:**Based on the in-depth analysis of the research status of association rule mining technology, the paper selects high spatial resolution remote sensing images to carry out image association rule mining research. Rural tourism mainly helps by promoting employment, driving industry, improving supporting facilities, and promoting environmental protection. On-site urbanization is realized; on-site urbanization drives the development of rural tourism through the advancement of population, economy, society and ecology. The evolution process of my country's rural tourism development policy is roughly divided into four stages, the evolution law and characteristics of my country's rural tourism policy and the development trend of my country's rural tourism are analyzed, and the nonlinear weighted kernel function and guide image of generalized guided filtering are estimated respectively. The experimental results show that the method can effectively suppress the speckle noise in the simulation and actual acquisition of high-resolution SAR images.

**Keywords:** Dynamic Evolution Model, Rural Tourism Trend , High-Resolution, Remote Sensing Image Mining

## 1. INTRODUCTION

Today, the Internet has become an indispensable part of people's lives, especially for the younger generation of college students, which provides an important channel for interpersonal communication and resource acquisition [1]. Data mining is defined as the process of extracting implicit, unknown, but potentially useful information and knowledge from massive, incomplete, noisy, fuzzy, and random data.

Remote sensing, as the name implies, is "remote perception", which refers to the non-contact reception of electromagnetic radiation reflected or radiated from objects at a certain distance through detection equipment mounted on different platforms (satellites, aircraft or vehicles, etc.) [2]. The signal and indicator system is a tree-like classification structure formed by a number of relatively independent and interrelated statistical indicators that reflect the overall characteristics of social and economic phenomena. The establishment of an index system is the premise and basis for predicting or evaluating social and economic phenomena [3].

Based on the actual development of urban and rural areas in my country, in the face of outstanding problems in rural areas, in 2017, General Secretary Xi proposed the "rural revitalization" strategy for the first time, emphasizing the importance of agriculture, rural areas, and farmers to my country's modernization drive [4], emphasizing the need to integrate agriculture and rural areas. The development of rural areas is the primary consideration in economic and social development. The real rural tourism in my country emerged in the 1990s [5]. In 2002, my country promulgated the "National Inspection Standards for Industrial and Agricultural Tourism Demonstration Sites and Industrial Tourism Demonstration Sites (Trial)", which provided policy support for the development of rural tourism in my country [6].

Under the background of rapid urbanization and new urbanization construction, many rural areas with convenient transportation have increasingly become important travel destinations for urban residents for weekend leisure vacations [7]. Real needs have inspired many villages around cities to develop rural tourism. Remote sensing Technology itself is an

interdisciplinary subject it comprehensively applies mathematics, physics, electronics, computers, communications and other disciplines [8].

This technology was proposed by an American scientist in the early 1960s. Generally speaking, remote sensing is called a kind of distance from the target, which is determined by indirect contact [9]. However, due to the openness and inclusiveness of the Internet, both positive and negative public opinion information can be quickly spread on the Internet, and it is easy to distinguish between It has a greater impact on young students with poor ability [10].

Remote sensing image data mining refers to the use of data image analysis technology, pattern recognition, artificial intelligence, geographic information system, spatial data mining related theories and methods to discover and mine the information hidden in remote sensing images [11]. At the same time, it is the rapid development of remote sensing data acquisition, remote sensing data processing and remote sensing data application technologies that has effectively promoted the continuous improvement of the overall technical level of remote sensing earth observation [12]. Especially after entering the 21st century, with the further strengthening of globalization and regional economic integration, to scientifically grasp the development trend of public opinion and take appropriate actions, it is necessary to build a public opinion index system [13].

The purpose of constructing the public opinion index system is to quantify the public opinion information, which is helpful to comprehensively understand the occurrence, development and trend of public opinion [14]. According to the analysis above, it can be seen that the interaction and coordination relationship between rural tourism and local urbanization is relatively complex. As a result of the combined action of a variety of complex factors [15], in order to optimize the interaction and coordination between the two, we must start from various factors to identify the impact of rural tourism. "The Eleventh Five-Year Plan issued in the same year proposed the development of leisure and sightseeing agriculture to increase farmers' income [16].

Although the rapid development of rural tourism can have many advantages such as improving the rural economy and increasing employment opportunities, negative effects are inevitable. For example, there will be economic disputes among villagers, rural managers, and foreign investors [17]. A "tragedy of the commons" emerges in development. Parallel computing technology has become more and more widely used in recent years, its goal is to solve large-scale or computationally-intensive scientific computing problems in a short time. Parallel computing has also been introduced into the field of image processing to solve the problem of massive data processing or massive computing [18].

## 2. THE PROPOSED METHODOLOGY

### 2.1 The High Resolution Remote Sensing Image Mining

The traditional image analysis technology is a kind of image analysis: the image analysis of the pixel operation level, so the features that can be described and extracted are very limited, which are nothing more than the basic visual features of the pixels, such as spectral features, texture features and the characteristics of the pixel set in the limited neighborhood range, and so on. From left to right, the direction parameter gradually increases from 0 to 7 (ie,  $K=8$ ).

It can be seen that the larger the scale of the 2D Gabor function is, the more significant the suppression of speckle noise is, and conversely, the smaller the scale is, the more sensitive it is to image details. Due to the complexity of the natural environment and the different resolutions of remote sensing images, the remote sensing information we are interested in presents complexity and diversity. Next, we first analyze the diversity and complexity of remote sensing image features containing road information. This is an important basis for designing extraction methods. The rural reconstruction process of rural tourism destinations is not just the repair of a single ancient building, nor is it a simple renovation of the village appearance, but in the process of tourism development and modernization, the core characteristics of more rural areas are well integrated into the village. In the development of the tourism industry. The difference index between patches is the weighted sum of the spectral merge cost and the shape merge cost, and the sign of the end of the merger is that the pairwise merge cost between the patches exceeds the square of the scale parameter.

Setting different scale parameters can realize the multi-precision image segmentation process. Based on the in-depth study of existing theoretical methods, this chapter proposes a high-resolution SAR image target detection method based on context-aware saliency. Firstly, through the analysis and induction of the overall statistical characteristics of the SAR image, the feasibility of using the saliency method for target detection is proved. The three remote sensing images above show different types of roads. The remote sensing image shows the urban road with a relatively simple structure. It can be seen that the morphological and color characteristics of the road are very uniform, the surrounding green space information, and the interference information on the road is very little.

### 2.2 The Dynamic Evolution Model of Rural Tourism Trend

The most common demographic phenomenon in rural areas is that young and middle-aged laborers go out to work, while the elderly, children, and disabled people stay behind in villages, resulting in labor shortages and population loss in rural areas.

However, rural tourism has a lower threshold for employment and is more inclusive, which is very suitable for rural labor force participation. Second, policies directly support the development of rural tourism. In terms of land use, the 2017 Central Document No. 1 provides land use support on the premise of insisting on land use management and control. In terms of finance, in 2016, the application for the 12 billion yuan tourism infrastructure fund was launched. It is characterized by the fact that the number of growth has entered a state of rapid and continuous growth.

The fourth stage is the stable stage. During the stable stage, the growth rate of the number of tourists in the tourist destination declines, and the growth rate is relatively stable; They are all combined on the basis of erosion and dilation operations. The composition of these filters ranges from simple to complex, but complex does not mean effective. Each filter has its own application characteristics. Therefore, in high-resolution remote sensing In the process of designing the image road extraction algorithm. One is the original ecological principle. Because the countryside is close to nature, it can provide a natural visual landscape, which meets people's landscape needs for the countryside, allowing tourists to fully perceive the aesthetics of the idyllic natural landscape. The development of rural tourism cannot destroy the existing natural ecological environment.

Because each index of the system has certain differences in concept, content and selection criteria, the dimensions of the data are basically different, which is not conducive to unified comparative analysis. Therefore, in order to have certain comparability between the data, in the grey relational analysis, first of all, it is necessary to strengthen the construction of rural tourism development system, build institutions, make plans, strengthen management, and provide more support, and promote the standardized, orderly, and sustainable rural tourism. continuous development. Secondly, the development of rural tourism involves multiple departments, and it is necessary to strengthen the coordination and cooperation of various departments, and a coordinated development mechanism for rural tourism should be established.

### 2.3 The Rural Tourism Prediction Model Based on High Resolution Remote Sensing Image Mining

This study uses FP. The Growth algorithm analyzes the structured transaction database of the two preprocessed remote sensing images in the rule generation area, and obtains strong association rules that are greater than the minimum support and minimum confidence. Verification. From the average point of view, the correlation between each indicator of rural tourism and the on-site urbanization system is relatively balanced. Among them, the number of rural tourists (X1) and the number of farmhouse (homestay) operating households (X5) are related to the on-site urbanization. The highest degree, that is, the two indicators are the main driving factors for rural tourism to influence on-site urbanization.

my country's rural tourism has developed to a certain stage, not only need to pay attention to the current development issues, but also need to think about sustainable development issues; it is necessary to pay attention to both the domestic market and the international market, and to create a world-renowned and enduring tourism product. direction efforts. The influencing factors of the rurality of rural tourism destinations are complex, therefore, this paper needs to find hidden representative factors among many variables through factor analysis, and group the variables of the same nature into one

factor, which is convenient for induction, analysis and summary.

Yuanjia Village is located in the Guanzhong Plain of Shaanxi Province, about 66.5 kilometers away from Xi'an City and less than 50 kilometers away from Xianyang City. Expressway and Provincial Highway 107. This paper uses SPSS 21.0 to conduct Exploratory Factor Analysis (EFA) on rural perception factors, extracts factors by principal component analysis (extracts items with factor loading greater than 0.50, and deletes factor loadings) There are more than two items with a quantity greater than 0.40).

### 3. CONCLUSIONS

After summarizing the characteristics of roads in remote sensing images, in-depth analysis of mathematical morphology, and summarizing and discussing parallel computing technology, a road extraction method based on mathematical morphology in high-resolution remote sensing images is proposed. By sorting out and analyzing the literature related to rural tourism and in-situ urbanization and summarizing the interaction mechanism, it is believed that there is indeed an interactive relationship between rural tourism and in-situ urbanization at the theoretical level. Among them, rural tourism mainly absorbs rural labor, promotes employment, and realizes population urbanization. Through the analysis of the literature related to rural tourism and in-situ urbanization and the summary of the interaction mechanism, it is believed that rural tourism and in-situ urbanization are theoretically related. There is indeed an interaction at the level. Among them, rural tourism mainly promotes employment and realizes population urbanization by absorbing rural labor force.

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# Application Study of Nursing Intervention Program under NIDCAP Philosophy in the Early Life of Extremely Low Birth Weight Infants

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**Abstract:** Objective: To study the application of the nursing intervention program under the individualized development care and assessment program (NIDCAP) philosophy in the early life of extremely low birth weight infants.

Methods: An asynchronous controlled experimental method was used. Clinical data of extremely low birth weight infants treated in our hospital from June 2020 to May 2022 before and after NIDCAP nursing intervention were collected. The control group included 99 patients (extremely low birth weight infants) treated from June 2020 to May 2021 and the NIDCAP group included 103 patients treated from June 2021 to May 2022.

General information of the two groups of patients, NIDCAP quantification indicators, growth and development indicators, neurological behavior scores, incidence of complications, and nursing satisfaction were compared.

Results: After the intervention under the guidance of NIDCAP philosophy, there was a statistically significant difference between the NIDCAP group and the control group in NIDCAP quantification indicators ( $P < 0.05$ ). The daily weight gain of the infants in the NIDCAP group (NG.) was higher than that of the control group ( $P < 0.05$ ), the time to achieve full oral feeding in the NIDCAP group was shorter than that in the control group ( $P < 0.05$ ) and the TIMP neurological behavior scores and nursing satisfaction ratings of the infants in the NIDCAP group were higher than those of the control group ( $P < 0.05$ ). The incidence of intraventricular hemorrhage in the NIDCAP group was lower than that in the control group ( $P < 0.05$ ).

Conclusion: The nursing intervention program under the NIDCAP philosophy can effectively increase the daily weight gain of extremely low birth weight infants, shorten the time to achieve full oral feeding, improve neurological behavior, promote brain development, reduce the incidence of intraventricular hemorrhage and achieve higher nursing satisfaction ratings.

**Keywords:** NIDCAP Nursing Model, Very Low Birth Weight Infants, Early Life, Growth and Development

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Clinically, newborns with a birth weight of less than 1500g are referred to as very low birth weight infants (VLBWI), who face more health problems and long-term developmental disorders than healthy newborns [1]. These problems include common conditions such as respiratory distress syndrome, intraventricular hemorrhage, hydrocephalus, infections, and pneumonia. Long-term prognosis may include developmental delays, diminished behavioral organization abilities, cognitive impairment, and cerebral palsy [2,3]. Therefore, how to improve their quality of life and physical condition has become a hot topic in neonatal research at home and abroad.

In response to the developmental characteristics of very low birth weight infants, American doctor Heidelise Als [4] and others proposed the Newborn Individualized Developmental Care and Assessment Program (NIDCAP) in 1984. This model pays more attention to the individual, comprehensive, and developmental care of preterm infants, and this idea is gradually being promoted in related care fields [5]. However, there is still some controversy over the effectiveness of this concept [6,7], and there is still a lack of comprehensive

research of NIDCAP on VLBWI in China, making systematic promotion challenging.

Based on this, this study aims to explore the impact of nursing interventions under the NIDCAP philosophy on the early life of very low birth weight infants through empirical research. The goal is to discuss whether this nursing program can better meet the developmental needs of very low birth weight infants, improve the clinical outcomes of very low birth weight infants during hospitalization in the NICU, and improve their quality of life, providing clinical reference. The research report is as follows.

## 1. Research Data

### 1.1 Research subjects

#### 1.1.1 Experiment group

Very low birth weight infants treated in the NICU of a Class A tertiary hospital in Wenzhou after the implementation of the program from June 2021 to May 2022 were selected. From June 2021 to May 2022, 610 preterm infants were admitted to



our hospital, of which 126 were very low birth weight infants of 1000g~1500g. According to the inclusion and exclusion criteria, 103 patients were actually included in the experiment group.

#### 1.1.2 Control group

Very low birth weight infants treated in the NICU of the same Class A tertiary hospital in Wenzhou before the implementation of the program from June 2020 to May 2021 were selected. From June 2020 to May 2021, 589 preterm infants were admitted to our hospital, of which 147 were very low birth weight infants of 1000g~1500g. According to the inclusion and exclusion criteria, 99 patients were actually included in the control group.

#### 1.2 Inclusion criteria

- ① Birth weight 1000g-1500g.
- ② Apgar score  $\geq 7$  points.
- ③ Admitted to NICU within 1 hour after birth, with medical support during transfer.
- ④ family members have a high degree of cooperation, who understand the purpose of this research, and sign the informed consent.

#### 1.3 Exclusion criteria

- ① Infants with severe congenital hereditary metabolic diseases, chromosomal diseases, severe nervous system diseases, physical deformities, significant organ function defects, and digestive dysfunction.
- ② Infants who died due to severe complications during the research process, whose families gave up treatment, or being transferred to other hospitals.
- ③ Infants with incomplete data.

#### 1.4 Definition range

The term "routine care for preterm infants" in this paper refers to the care method used for very low birth weight infants before the NIDCAP care program was introduced in 2021 in this hospital. This is a specific term used in nursing work for convenience, rather than the general meaning of "basic" and "common" in Chinese.

#### 1.5 Data collection range

This study uses a non-synchronous control experiment. The "control group" experimental data collection object in this paper is the data before the implementation of the NIDCAP nursing program (June 2020-May 2021); the "NIDCAP group" experimental data collection object is the data after the implementation of the NIDCAP nursing program (June 2021-May 2022). This study was approved by the Ethics Committee of the author's hospital (YJ-2022-K-277-01), and the family members of all the research subjects were informed, agreed and signed the informed consent, so all the data collected in this research are authorized.

## 2. Research Methods

### 2.1 Implementation of NIDCAP care

#### 2.1.1 constitute of the NIDCAP program leading team

the team consists 5 nurses, all of whom bear rich experiences in NICU, including 1 with a senior title, 2 with intermediate titles, 2 neonatal specialist nurses. They are in charge of working out plans and assigning tasks. Neonatal specialist

nurses in the team conduct specialized training according to the NIDCAP nursing program, including teaching the NIDCAP concept and interpret intervention measures.

2.1.2 Training: All nursing staff in the department have been trained with NIDCAP nursing homogenized management, unifying the standards for various nursing operations. various operations are implemented and reviewed. Training is conducted once a week for 4 consecutive weeks. A score of 90 or above is considered up to the standard, and those who failed would continue to strengthen the training until they were qualified. Thus, nursing care for the NIDCAP group research subjects follows the routine care for preterm infants and the NIDCAP nursing program.

#### 2.2 Nursing implementation of the NIDCAP group

(1) Ward environment: a. Rectify the ward environment: create a clean and comfortable ward environment, the bed spacing of the patient's incubator or small bed is reasonable, bed spacing  $>1.5\text{m}$ ; through 5S management, sort out the equipment in the room, neatly place the items, no idle backup equipment; b. Reduce environmental noise: reduce environmental noise from equipment and general activities in the Newborn Intensive Care Unit (NICU): use sound control noise meter to provide suitable sound environment for fragile infants, ward noise does not exceed 60 decibels; c. Standardize the behavior of medical staff: Update the working shoes of medical staff to reduce the noise of walking; close the incubator gently; set the alarm volume of medical equipment reasonably; reduce the volume of medical staff speaking in the ward.

(2) Sleep Support: a. NICU lighting intensity: 25fc-60fc; special treatment 100fc; b. For infants aged 24w-30w, use a blackout cloth for light control; for infants aged 30w-34w, keep the blackout cover half open during the day to cycle day and night. c. Nurses pay attention to the adjustment of indoor lighting during non-operation periods, such as room curtains and light adjustment; d. For non-emergency medical orders or operations, operations can be appropriately postponed during the quiet sleep of the patient, and the order and timing of disposal can be adjusted according to the current situation.

(3) Feeding: a. Breastfeeding, try to increase the breastfeeding rate; b. Start milk as soon as possible after birth, using colostrum oral drop; c. Use non-nutritive sucking, use pacifier oral sucking for 5 minutes before milk during the transition from nasal feeding to oral feeding. d. Choose to use preterm baby-specific bottles for feeding. e. Strengthen health education on breastfeeding, enhance teaching and learning through WeChat official account, so that family members can strengthen and improve their belief and confidence in breastfeeding, improve the pass rate of breast milk collection, storage, and transportation, and improve the safety of breastfeeding.

(4) Pain Relief: a. For operations with painful experiences, such as tracheal intubation, deep vein cannulation, suction, puncture, foot blood sampling, etc., use two-person operation, one person soothes and stabilizes the patient to reduce the pain experience, and the other person performs operations with gentle movements; b. Use non-nutritive sucking, 5% GS sugar water, and swaddling to reduce pain experiences; c. Concentrate operations, keep the patient quiet and stable during operation. After each operation, soothe the patient until the patient's vital signs return to stability, and minimize the patient's pain experience. d. Follow the doctor's advice to

arrange sedative drugs reasonably, use the N-PASS score, and evaluate the patient's pain.

(5) Positioning: a. Use bird's nest, frog-shaped pillow, straps to better support the baby's position; b. Choose the appropriate size of medical equipment and care products, such as the size of respirator nose masks, nasal congestion, preterm baby diaper sizes, etc.

(6) Olfactory Stimulus: Place a gauze soaked with the mother's breast milk next to the patient's nose, change it every 3 hours, and place it for 1 hour each time.

(7) Strengthened Nurse Training:

The training content mainly includes: a. The special conditions and physiological development laws of preterm infants. b. The principles and methods of preterm infant care. c. Safety measures and danger recognition in the nursing process. d. The prevention and treatment of common diseases in preterm infants. e. Nursing records, observation and assessment skills. f. Communication skills and psychological support with family members.

(8) Parent Class: a. Regular knowledge training for parents every week, courses include the growth and development characteristics of preterm infants, daily care of preterm infants, nutrition and feeding of preterm infants, prevention of disease infection, vaccination; b. Before preparing for discharge, invite family members to enter the ward to learn about newborn feeding and newborn care, guide home care knowledge and skills. Including learning to recognize preterm infant physiology, motor and behavioral stress signals, common infant choking, asphyxia first aid measures, etc.

2.3 Control Group Implementation Method (before May. 2021)

Before May 2021, the implementation process of the nursing plan of the control group: According to the nursing norms for premature infants, the routine nursing rules for low-weight premature infants were implemented, including oral care, skin care, temperature management, nutritional support, infection prevention, respiratory management and circulation monitoring, etc. In addition, psychological support was provided to the families of the infant. However, care for the control group was not being guided by the NIDCAP philosophy of care until May 2021, and the scope and standards of those operations are not specified.

2.4 Assessment Tools

2.4.1 A general information survey: The content includes gestational week of birth, gestational age, weight, mode of delivery, patient medication treatment situation, oxygen use, complications, discharge weight, implementation of NIDCAP intervention nursing measures, etc.

2.4.2 Intervention measure recording form: The content includes observation time of two groups of patients, records of nursing operation in 4 hours, frequency of door opening of the incubator, number of patients per ward, ward light, environmental noise, parent care time, pacifier use, etc.

2.5 Evaluation Indicators

2.5.1 NIDCAP Quantitative Indicators:

① FCC (family centered care): The time the family enters the ward to care for the patient, including kangaroo care and family breastfeeding time.

② Ward noise: Use a sound control noise meter to measure the overall sound decibel in the unit room.

③ Environmental light: Use a spectrometer to measure the light in the patient's incubator.

④ number of patients per ward : Refers to the number of patients placed in the unit room, indirectly reflecting ward management, nursing quality, environmental control.

⑤ 4-hour incubator door opening times: Record the number of incubator door openings in 4 hours at a designated time, indirectly reflecting the degree of concentrated nursing operations.

⑥ Pacifier user: The number of people who use a pacifier for non-nutritive sucking.

2.5.2 Growth and Development Indicators: Full oral gestational age, hospitalization days, discharge weight, daily weight gain situation.

2.5.3 Neurobehavioral Score (TIMP)[8]: Test of Infant Motor Performance (TIMP) evaluates preterm infants' motor abilities, including muscle tension, movement coordination, balance ability, etc. The evaluator will observe the infants motor performance including head control, trunk control, limb control, etc., and give corresponding scores. The test subjects are infants from 34 weeks corrected age to 17 weeks after full term. The test can effectively predict the infant's motor development [9].

2.5.4 Complications: Intraventricular hemorrhage, late-onset sepsis, neonatal necrotizing enterocolitis (NEC), patent ductus arteriosus (PDA).

2.5.5 Scale of Nursing Satisfaction: The scale mainly includes 25 points of evaluation in six dimensions, including ward environment, doctor-patient communication, professional operation, diagnosis and treatment quality, humanitarian care, and medical costs. The total score is 100 points. Satisfaction = (Number of Satisfied Cases + Fairly Satisfied Cases) / Total Cases \* 100%. The questionnaire is distributed and collected on the spot, guided and reviewed by the responsible nurse, with a 100% recovery rate.

2.6 Data Collection and Control Methods

A dedicated area is set up at the bed units of the experimental subjects for the placement of intervention measure records. Before collecting the data, systematic training is given to the nurses to ensure the homogeneity of the records. The data is recorded at regular times and places. Two group members enter the final data into the electronic system after reviewing and auditing the electronic medical record system and collecting the intervention measure records, ensuring the timeliness and accuracy of data collection.

2.7 Statistical Methods

For normally distributed measurement data, mean  $\pm$  standard deviation ( $\bar{x} \pm s$ ) is used for description. Independent sample t-tests are used for comparison between two groups. Non-normally distributed measurement data are described with median and interquartile range [M(Q1,Q3)], with Mann-Whitney U rank-sum test used for comparisons between two groups. Count data is described with number and percentage [N(%)], and Chi-square test or Fisher's exact test are used for comparisons between two groups of categorical data. Statistical analyses are performed using SPSS 26.0 software. Two-sided tests are used, and a p-value  $< 0.05$  is considered statistically significant.

### 3. Results

#### 3.1 Comparison of General Information of the Two Groups of Subjects

From Table 1, after differential analysis, it was found that the gestational age of the NIDCAP1 group was 30.14 (28.90, 31.86) weeks, with 54 males and 49 females. The median birth weight was 1250g, including 67 cases of cesarean section and 36 cases of vaginal delivery. The gestational age

of the control group was 30.10 (29.00, 31.90) weeks, with 47 males and 52 females. The median birth weight was 1280g, including 76 cases of cesarean section and 23 cases of vaginal delivery. There was no statistically significant difference in gestational age, gender, birth weight, and mode of delivery between the two groups of subjects ( $P>0.05$ ).

Table 1. Differential analysis of gestational age, gender, birth weight, and mode of delivery in the two groups of subjects.

Variables	NG. (n=103)	CG. (n=99)	Amount of Inspection	PGestational Age, M(Q1,Q3)
Gestational Age, M(Q1,Q3)	30.14(28.90,31.86)	30.10(29.00,31.90)	Z=-0.0790.937	30.14(28.90,31.86)
Gender, n(%)	$\chi^2=0.4950.482$ Male54 (52.43)47 (47.47) Female49 (47.57)52 (52.53)	$\chi^2=0.4950.482$ Male54 (52.43)47 (47.47) Female49 (47.57)52 (52.53)	$\chi^2=0.4950.482$ Male54 (52.43)47 (47.47) Female49 (47.57)52 (52.53)	$\chi^2=0.4950.482$ Male54 (52.43)47 (47.47) Female49 (47.57)52 (52.53)
Birth Weight, M(Q1,Q3)	1250.00(1100.00,1385.00)	1280.00(1160.00,1420.00)	Z=-1.8670.062	1250.00(1100.00,1385.00)
Mode of Delivery, n(%)	$\chi^2=3.3530.067$ Cesarean Section67 (65.05)76 (76.77) Vaginal Delivery36 (34.95)23 (23.23)	$\chi^2=3.3530.067$ Cesarean Section67 (65.05)76 (76.77) Vaginal Delivery36 (34.95)23 (23.23)	$\chi^2=3.3530.067$ Cesarean Section67 (65.05)76 (76.77) Vaginal Delivery36 (34.95)23 (23.23)	$\chi^2=3.3530.067$ Cesarean Section67 (65.05)76 (76.77) Vaginal Delivery36 (34.95)23 (23.23)

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3.2 Comparison of NIDCAP Quantitative Indicators of the Two Groups of Subjects: See Table 2. In the comparison of NIDCAP quantitative indicators, the NIDCAP I group scored higher in observation time, parental involvement in care time, environmental noise, environmental light, number of patients in the ward, number of incubator openings in 4 hours, and number of pacifier users compared to the control group, showing a statistically significant difference ( $P < 0.05$ ).

Table 2 Comparison of NIDCAP related indicators between the two groups of subjects.

Group	FCC	Ward noise	Environmental light	Number of patients per ward	4-hour incubator openings times	Pacifier user
NIDCAP I						
Control						

		times	
NIDCAP I	Control	6.00 (0.00, 10.00)	54.00 (50.00, 58.30)
NIDCAP I	Control	0.00 (0.00, 9.00)	9.00 (6.00, 10.00)
NIDCAP I	Control	6.00 (4.00, 7.00)	77 (74.00, 76.00)
NIDCAP I	Control	0.00 (0.00, 9.00)	9.00 (6.00, 10.00)
NIDCAP I	Control	6.00 (4.00, 7.00)	77 (74.00, 76.00)
NIDCAP I	Control	0.00 (0.00, 9.00)	9.00 (6.00, 10.00)
NIDCAP I	Control	6.00 (4.00, 7.00)	77 (74.00, 76.00)

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3.3 Growth and Development Indicators of the Two Groups of Subjects: See Table 3. In the comparison of growth indicators, the gestational age at which infants in the NIDCAP1 group were fully orally fed and their average daily weight gain were higher than those in the control group, showing a statistically significant difference (P<0.05). The comparison of the number of days hospitalized and weight at discharge between the two groups showed no statistically significant difference (P>0.05).

Table 3 Growth and development indicators

Group	Days Hospitalized	Gestational Age with Oral Fed	Weight at Discharge (g)	Weight at Discharge (g)	Average Daily Weight Gain (g)
NG. (n=103)	49.52±14.90	35.14	2270.00	2270.00	22.94
CG. (n=99)	50.46±14.92	36.00	2305.00	2305.00	21.69
t/Z-	0.4484.27	4.2761.34	1.347-	2.962P0.6	2.962P0.6
0.448	61.347-	2.962P0.6	55<0.001	55<0.001	55<0.001

3.4 TIMP Neurobehavioral Scores of the Two Groups of Subjects: See Table 4. In the TIMP scores, the score of the NIDCAP1 group was 36.1±2.57 at the corrected gestational age of 36 weeks, which was higher than the 33.58±2.37 of the control group, showing a statistically significant difference (P<0.05).

Table 4 Neurobehavioral scores (corrected to 36 weeks gestational age).

GroupTimp (score)	NG. (n=103)	36.1±2.57	Timp (score)	NG. (n=103)	36.1±2.57
	CG. (n=99)	33.58±2.37		CG. (n=99)	33.58±2.37

Comparison of Complications in the Two Groups of Subjects: See Table 5. In the comparison of complications, 13 children in the NIDCAP1 group had intraventricular hemorrhage, compared with 25 in the control group. The difference in the occurrence of intraventricular hemorrhage between the two groups showed statistical significance (P<0.05). There was no significant difference between the two groups in the occurrence of late-onset sepsis, NEC (necrotizing enterocolitis), and PDA (patent ductus arteriosus) (P>0.05).

36.1±2.57CG. (n=99) 33.58±2.37t7.235PP<0.0013.5 Comparison of Complications in the Two Groups of Subjects: See Table 5. In the comparison of complications, 13 children in the NIDCAP1 group had intraventricular hemorrhage, compared with 25 in the control group. The difference in the occurrence of intraventricular hemorrhage between the two groups showed statistical significance (P<0.05). There was no significant difference between the two groups in the occurrence of late-onset sepsis, NEC (necrotizing enterocolitis), and PDA (patent ductus arteriosus) (P>0.05).

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groups in the occurrence of late-onset sepsis, NEC (necrotizing enterocolitis), and PDA (patent ductus arteriosus) ( $P>0.05$ ).

$t7.235PP<0.0013.5$   
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$7.235PP<0.0013.5$  Comparison of Complications in the Two Groups of Subjects: See Table 5. In the comparison of complications, 13 children in the NIDCAP group had intraventricular hemorrhage, compared with 25 in the control group. The difference in the occurrence of intraventricular hemorrhage between the two groups showed statistical significance ( $P<0.05$ ). There was no significant difference between the two groups in the occurrence of late-onset sepsis, NEC (necrotizing enterocolitis), and PDA (patent ductus arteriosus) ( $P>0.05$ ).

$P<0.0013.5$  Comparison of Complications in the Two Groups of Subjects: See Table 5. In the comparison of complications, 13 children in the NIDCAP group had intraventricular hemorrhage, compared with 25 in the control group. The difference in the occurrence of intraventricular hemorrhage between the two groups showed statistical significance ( $P<0.05$ ). There was no significant difference between the two groups in the occurrence of late-onset sepsis, NEC (necrotizing enterocolitis), and PDA (patent ductus arteriosus) ( $P>0.05$ ).

3.5 Comparison of Complications in the Two Groups of Subjects: See Table 5. In the comparison of complications, 13 children in the NIDCAP group had intraventricular hemorrhage, compared with 25 in the control group. The difference in the occurrence of intraventricular hemorrhage between the two groups showed statistical significance ( $P<0.05$ ). There was no significant difference between the two groups in the occurrence of late-onset sepsis, NEC (necrotizing enterocolitis), and PDA (patent ductus arteriosus) ( $P>0.05$ ).

Table 5 Comparison of complications [number (%)]

Group	Intraventricular Hemorrhage	Delayed Sepsis	NECPD	PDANG
Intraventricular Hemorrhage	13 (26.9)	17 (33.3)	12 (23.1)	48 (93.8)
Delayed Sepsis	17 (33.3)	12 (23.1)	48 (93.8)	13 (26.9)
NECPD	12 (23.1)	48 (93.8)	13 (26.9)	17 (33.3)
PDANG	48 (93.8)	13 (26.9)	17 (33.3)	12 (23.1)
Control Group (n=99)	25 (25.3)	14 (14.1)	10 (10.1)	56 (56.6)
Statistical Significance	$P<0.05$	$P<0.05$	$P<0.05$	$P>0.05$

P0.0220.6 0.0220.64 0.6410.72 0.7240.1 0.157  
 410.7240. 10.7240.1 40.157 57  
 157 57

indicating that a nursing intervention program based on the NIDCAP philosophy has positive effects in the early life of extremely low birth weight infants.

3.6 Evaluation of Nursing Satisfaction in the Two Groups of Subjects: See Table 6. In terms of satisfaction, the nursing satisfaction rate in the was 89.32% (92/103), which was higher than that of the control group at 70.71% (70/99), and the difference was statistically significant ( $P < 0.05$ ).

Table 6 Evaluation of nursing satisfaction [number (%)]

Group	Very Satisfied	More Satisfied	Not Satisfied	Satisfaction NG. (n=103)
Intervention (n=103)	37 (35.92)	55 (53.40)	11 (10.68)	92 (89.32)
Control (n=99)	24 (24.24)	46 (46.46)	29 (29.29)	70 (70.71)
Statistical Test	$\chi^2 = 11.013$	$P = 0.001$	$\chi^2 = 11.013$	$P = 0.001$

#### 4.1 The Implementation of a nursing intervention program based on NIDCAP principles can shorten the time to complete oral feeding and accelerate weight gain

In this study, the NIDCAP group achieved complete oral feeding at 35.14w of gestational age, earlier than the control group at 36w, proving that the NIDCAP nursing intervention program can effectively shorten the time for extremely low birth weight infants to reach full oral feeding. The reasons may be as follows: previous NICU care modes often follow medical tasks and diagnostic routines[10], with many atypical stimuli in this specific environment, such as sudden changes in body position, sudden aspiration, blood collection, excessively high sound and light, all of which can cause changes in cerebral blood flow[11], leading to abnormal vital signs, which are not conducive to the growth and development of extremely low birth weight infants[12]. The implementation of the NIDCAP nursing intervention program allows healthcare professionals to develop individualized nursing plans based on the actual situation of the infant, optimizing the ward environment, controlling sound and light within an ideal range, improving the sleep quality of the infant, as much as possible implementing individualized nursing operations, performing operations during the infant's awake state[13], combining non-nutritional sucking during feeding, active breastfeeding strategies[14,15], to a large extent, accelerating the process of complete oral feeding and achieving better weight gain. This is consistent with the results of Griffiths, Park J[16,17], who believe that optimization of the environment and a better grasp of the infant's sleep behavior state can better promote oral feeding of preterm infants.

#### 4.2 The Implementation of a nursing intervention program based on NIDCAP principles can reduce the incidence of intraventricular hemorrhage and effectively protect the infant's nervous system

Research has shown[18] that the incidence of severe intraventricular hemorrhage is high in extremely low and very low birth weight infants, prone to brain injury, and the smaller the gestational age and weight, the higher the incidence. The immaturity of preterm infants makes them susceptible to peripheral environmental influences, such as sound and light stimulation, causing crying and restlessness, which also increases the incidence of ventricular hemorrhage. In this study, after implementing the NIDCAP nursing intervention program, the incidence of intracranial hemorrhage in the NIDCAP group was 13 cases, lower than the 25 cases in the control group ( $P < 0.05$ ). The reason for the reduced incidence of intraventricular hemorrhage may be the use of nest wrap, frog-shaped pillows, girdle, and other auxiliary tools to provide positional support, comforting the infant through wrapping or bundling to maintain calmness, thereby achieving more stable self-regulation[19]; through double-person operations, one person comforting and one operating, minimizing the infant's pain experience, reducing fluctuations in cerebral blood flow in preterm infants, reducing the stimulus of the environment on preterm infants, conducive to the development of neurological behavior in preterm infants. The smell of breast milk is given to stimulate the infant's

### 4. The Discussion

Compared with the control group, the implementation of the NIDCAP care plan resulted in a significant improvement in NIDCAP quantitative indices for the NIDCAP group. The duration for infants in the NIDCAP group to achieve complete oral feeding was shortened, with better daily weight gain. The NIDCAP group also achieved higher TIMP scores and had a lower incidence of ventricular hemorrhage,



sense of smell, ensuring the stability of vital signs as much as possible. Research has shown[20] that the smell of the mother can also lower various scores of physiological and behavioral evaluations in newborns, and by familiar smell treatment, newborns are more likely to return to a calm state in a short time, thus stabilizing cerebral blood flow and reducing the occurrence of intracranial hemorrhage or sequelae. In terms of TIMP scores, infants in the NIDCAP group performed better than the control group in motor abilities, including muscle tone, coordination, balance, head control, trunk control, and limb control. This indirectly indicates that the implementation of the NIDCAP nursing intervention program can effectively protect the nervous system of the infant, realizing early detection and early intervention of the nervous system in extremely low birth weight infants, effectively inhibiting the occurrence and development of neurological sequelae in extremely low birth weight infants, to achieve better long-term prognosis.

### 4.3 The Implementation of a nursing intervention program based on NIDCAP principles can improve nursing satisfaction

This study shows that the nursing satisfaction in the NIDCAP group was higher than in the control group. The reason may be that the NIDCAP method is infant-centered, i.e., individualized nursing plans are formulated according to the behavioral performance and needs of each infant. Research has shown[21] that this kind of individualized nursing program makes parents feel that their child is getting more professional and meticulous attention. Secondly, the NIDCAP nursing program strives to reduce the discomfort and pain of the infant, making parents feel satisfied and trust the hospital and medical staff's care. Lastly, the NIDCAP nursing program strengthens parental involvement and communication, allowing parents to actively participate in the nursing process, and also better understand, learn, and master the health status of their children, thereby increasing parental satisfaction.

In summary, the nursing intervention program under the NIDCAP philosophy plays a positive role in the early life of extremely low birth weight infants, shortens the time to achieve complete oral feeding, accelerates weight gain, reduces the incidence of intraventricular hemorrhage, effectively protects the infant's nervous system, and also achieves good nursing satisfaction ratings.

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# Application of Computer Aided Design in Industrial Product Design: Algorithm Implementation Based on C#

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**Abstract:** With the rapid development of the socialist market economy, industrial design plays an important role in the process of economic and cultural development. Industrial design has an important impact on the design and manufacture of industrial products. The gradual development of computer-aided design in the process of industrial design Application has greatly promoted the development of industrial design and the development of industrial network informatization. Computer-aided design abbreviated CAD is engineering and technical personnel under the assistance of computer hardware and software systems A technique for designing. Originally used for scientific computing , control and office automation , it has developed rapidly in recent years.

**Keywords:** Computer Aided Design, Industrial Product Design, Algorithm Implementation, C#

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## 1. INTRODUCTION

The application of CAD technology is a new technology formed with the development of computer and its peripheral equipment since the 1950s. The earliest application of CAD technology to practice was the American General Motors Company and IBM Company, which used computers to design the car front window glass profile [1]. From conceptual design to production design to manufacturing, man-machine dialogue can be realized, and the designer can [2] modify the graphics on the display arbitrarily. Until the entire design work is completed. Although China is a big agricultural country [3], the industry has achieved great development in recent years. The development of design has brought great convenience to people's lives. my country's industrial products have gradually shifted from initial import to export, and industrial design products have brought more benefits to our [4] production and life. The retrospective method is a statement of the problem A set of solutions for which there is a possibly optimal solution. The idea of the recursive backtracking method is very simple [5].

It can traverse the search space and find the optimal solution to the knapsack problem. The disadvantage is that the set of solutions to the knapsack problem will increase with the geometric progression of 2 as the number of items n increases. The past eyelashes that did not follow the computer to the Chinese market [6]. The advantages of computer-aided design, such as high rate, high precision and easy modification, have attracted the attention of the majority of design enthusiasts. With the ever-increasing commodity [7] competition and market competition, it is not only required to shorten the replacement cycle of products, but also require products to be diversified and high-end products [8]. Quality, small batch conversion, so the traditional manual design method can not adapt to the requirements of this change [9].

At the same time , with the development of computer technology and electronic technology , there have been many types of computer hardware and peripheral devices with good performance . Such as graphic displays, digitizers, light pens, automatic plotters and other graphic processing devices with increasingly rich varieties and functions. The application of computer-aided design plays an important role in promoting the design and production of industrial products, and is conducive to the formation of industrial products with Chinese characteristics. Design and production system, the

application of computer-aided design can improve the level and efficiency of industrial design. Branch-bound is different from the method of backtracking to expand E-node. It is another method of traversing the solution set comprehensively. According to this algorithm, any live node can only be changed to E-node once. When a node is changed to E node, some new nodes (that is, branches) will be generated at the same time, and the newly generated nodes are realized by jumping one step from the original node [10].

Exploring the application of software in product modeling design [Ten Sum Summary Product modeling design is a branch of industrial design, which is called industrial modeling design by many people [11], from the point of view of software production. In fact, whether it is product design or industrial design. With the development of commodity [12] economy, the market economy is becoming more and more international today, the pace of people's life is accelerating year by year, and whoever can meet people's ever-changing needs will survive and develop, and whoever will be rejected disuse [13]. Using computer-aided design to rely on and develop industrial design has become a key technology for economic take-off and speeding up the construction of the national economy. With the development of [14] computer information technology and the arrival of the information age, the application of computer-aided design in industrial design and the integration of computer and industrial design are more and more, which has an important impact on industrial production and people's lives [15].

The retrospective method is an algorithm for querying the answer to a question [16] on the result space tree T of the question. The backtracking method searches the result space tree from the root node according to the depth-first method in the result space tree of all solutions. When the algorithm searches to each node of the result space tree, it first checks to see if there is no result [17]. For two-dimensional data processing software. Take lb's plan for a product as an example. The first step is to set the servant himself to use simple lines to outline the outline and details of the machine on the paper L with his bare hands, and then use the computer to express the empty space in the form of dimensional software or three-dimensional software. The rapid development is benefited from computer-aided design, and it is also an advantage that many traditional designs cannot match [18].

## 2. THE PROPOSED METHODOLOGY

### 2.1 The Computer Aided Design

At present, computer-aided design has been widely used in industrial design (including product modeling design, packaging design, advertising design, environmental design), such as high-speed, comfortable modern transportation, elegant living environment, convenient and light office information terminals, Clean and tidy electrified kitchen utensils, sophisticated and safe advanced medical equipment, wonderful and exciting entertainment products, and industrial design are a comprehensive discipline that covers ergonomics, design aesthetics, and product design. In the process of industrial production, industrial design is of great significance to the design and manufacture of industrial products and the handling of the relationship between products and consumers. Only modern design means can improve the level of industrial design, and computer-aided industrial design has opened up the development of modern industrial design. Milestone, it adapts to the challenges of market competition and high technology to industrial design to a great extent, therefore, the application of computer technology is an important symbol of the development of industrial design from low-level to high-level.

To make the calculation of the upper bound function more convenient, we might as well Let the items be sorted in descending order by weight value. When executing, the function fanwei is used to find the upper bound of the latest node. Only when the right subtree is to be entered, the upper bound function fanwei is calculated to determine whether the right subtree is to be used. Deleted. Because of the high resolution requirements of the fruit collection circle, the hardware design requirements of the computer itself are relatively high in the process of making this software. However, the post-processing of software such as Photoshop is very good. . So it has also been widely promoted by many design enthusiasts. Industrial design has become an important factor in promoting social development today. At this stage, the level of industrial design in China is far lower than that of Western European and American countries, and the technology and design system are not perfect. It needs to be gradually perfected in the actual design and production process. Graphical processing devices with increasingly rich varieties and functions, such as graphic displays, digitizers, light pens, automatic plotters, etc. In recent years, computer software technology has been greatly improved, database technology has been developed, a large number of graphic software and various application software that are compatible with modern design theory have been developed. High-tech achievements and mature commercial software The emergence of CAD technology has promoted the application and development of CAD technology. The application of computer-aided design in industrial design is the need of industrial development at this stage and the necessity of the development of socialist market economy, and the use of advanced technology and technology to develop industry is the embodiment of scientific.

### 2.2 The Applications in Industrial Product Design

The commonly used operations of collecting, dispatching and signing are designed as buttons with pictures, and the camera can be called up with one key to take pictures. In the information age, computer technology is ubiquitous, and the integration of computer technology and industrial design has greatly promoted the development of the industrial product

design industry. and Industrial design guided by humanized and sustainable design concepts is booming. Locking is freed from repetitive design work, so that ingenuity and energy can be invested in new technology development research, modern design theory and method research, and creative work that cannot be replaced by computers. d. Conducive to product standardization, serialization and generalization. Applying the CAD method, the product series design can be easily realized by changing the input parameters.

### 2.3 The Algorithm implementation based on C#

The statistics of collection and delivery are displayed by day in the form of a list. Click to view the list of all shipments of the day, and click the list of shipments to view The detailed information of the shipment is displayed in the form of a time axis, which is convenient to check the status of the shipment. It is accounted for by the two-dimensional production software that was mocked by Tiao. If we divide the dredging process of Fadei Minguo's shyness into modeling and Ranyanmo, I think that there is no three-dimensional software that is fully capable of product design. With the continuous development of people's material life To be satisfied, people's requirements for industrial products are getting higher and higher, and they are no longer satisfied with practicality and the function of the product itself, and the requirements for humanized and emotional design outside industrial products have increased.

Therefore, the application of computer-aided design software in the industry The design process is of great significance. It is beneficial to the development of computer-aided manufacturing (CAM), and through the integration of CAD/CAM, the integration of product design and manufacturing is realized. This paper deeply studies the key technologies in the development of express management system based on Android platform Foundation, system physical architecture, business process design, function design, database design, interface design. The joint development mode of client-side Android native APP and server-side Java Web platform is proposed. The application form of computer-aided design in industrial product design is mainly the drawing of industrial product drawings, the production of product models, and the design of products with design aesthetics.

In the computer-aided design, the shape and color of industrial products have an important influence on the beauty of the form of industrial products. And the solution of the new SME mobile application cloud platform service using MoPaaS to deploy server applications. The system has been applied in a city express company, which effectively solves the management problem of the courier's workload information statistics query. In order to synchronize the time between the video key frame image of the light and small UAV and the GPS information, the GPS information can be combined with the GPS information using time. One-to-one correspondence between key frame images. The dual-frequency GPS for mapping and single-frequency GPS for navigation in the flight control system are mainly installed on the light and small UAV flying platform. In the process of product design, software such as Pro E and UG Solidworks needs to be used to make structural models. In this process, the structural model is more planned and completed by the structural engineer. , the GPS information at any time during the video stream image data collection process can be obtained. In the research of UAV video streaming image data processing, the focus is on the application of GPS positioning data to ensure

that the extracted key frame images at any point in time have GPS information, and the GPS data should be interpolated. In the increasingly mature multimedia technology era. It's computer-aided pedal technology is gradually being improved and updated, but Mr. Lr should not only focus on the innovation of software and ignore the importance of rf painting. Having a solid artistic foundation is very important to the application of computer-aided software. fire effect.

### 3. CONCLUSIONS

The application form of computer-aided design in industrial product design is mainly the drawing of industrial product drawings, the production of product models, and the design of products with design aesthetics. Has an important impact. We say that the soul of design is creativity and innovation, and software is an auxiliary tool to help design the realization of ideas. Let the designer control the software instead of being bound by the software. Shape and color are what consumers and buyers first perceive through sight, hearing and touch when choosing industrial products. The shape and color of industrial products will affect the market competition of products. and product form beauty design.

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# Intelligent Network Modeling for Effective Dissemination of Marxist Ideology Based on Distributed Internet Architecture

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**Abstract:** The extensive use of network technology can effectively alleviate the contradiction between the communication subject, the communication object and the communication medium, and improve the timeliness of information dissemination. Constantly improve the new model of popularization of Marxism. For example, scientifically setting up Marxist popular communication topics that keep pace with the times; optimizing the Marxist popular communication framework suitable for mass participation; actively creating a healthy and upward Marxist popular communication environment, etc. Pay attention to solving online problems offline, highlight the importance of maintaining the dominant ideology from the perspective of solving practical problems; expand the international discourse power and enhance the radiating power of Marxist ideology.

**Keywords:** Intelligent Network Modeling, Effective Dissemination, Distributed Internet Architecture

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## 1. INTRODUCTION

The Internet has opened up a new path for the construction of socialist ideology, but also brought unprecedented challenges [1]. The public's attitudes, concepts, and positions on public issues and managers can be highly concentrated and disseminated rapidly in a relatively short period of time through an open Internet platform, snowballing to attract the participation of [2] other netizens to form public opinion. Among them, extreme and negative opinions and attitudes have been widely spread through the Internet. On October 18, 2017, the 19th National Congress of the Communist Party of China was held in Beijing [3]. General Secretary Xi Jinping clearly pointed out at the meeting that "it is necessary to promote the Sinicization of Marxism, the popularization of the times, the construction of A socialist ideology with strong cohesion and leadership" [4].

Almost 98% of the market share of China's mobile market is occupied by Google and Apple, that is to say, 98% of the information in my country's mobile market may be held by the US government [5]. There are many such cases. Obviously, the Internet has become an important tool for opposition forces to infiltrate my country's ideology. On the afternoon of July 23, 2014, SAIC Motor and Alibaba signed a strategic cooperation agreement on "Internet Cars" in Shanghai. From now on, the two parties will cooperate in the field of "Internet car" and related services [6], and jointly build a future-oriented "Internet car" and its ecosystem.

The term Internet car was officially proposed. At present, all large state-owned commercial banks use IBM mainframes to build their core business [7] systems. The centralized architecture of mainframes has the characteristics of being centralized, proprietary, and closed. System software and tools are controlled by [8] American companies such as IBM, BMC, and CA. Build and operate expenses continue to be the bulk of a bank's IT investment. At present, these measurement frameworks have the [9] following shortcomings: lack of a customized system for measurement and analysis solutions oriented to application requirements; insufficient and fragmented analysis methods, not systematically added to the architecture; measurement items are mainly limited to delay,

discard rate [10], throughput and other performance indicators, without considering various application requirements, such as intrusion detection, vulnerability measurement, etc. [11]

With the rapid popularization of 3G and 4G networks and mobile smart terminals in my country, the mobile Internet has been fully integrated into the work and life of modern people, changing everyone's living habits and consumption patterns. Mobile shopping [12], payment, ticket booking, entertainment services, etc. have become It is an important part of people's spare time activities, which promotes the rapid development of mobile e-commerce, which uses mobile data terminal equipment to participate [13] in business operations. Due to the division of disciplines, the research on the guidance of network public opinion has been stuck in a few disciplines such as journalism and communication. within the category. In fact, we can also find a lot of lessons from the classic Marxist theory [14].

From a practical point of view, entering a new era of socialism with Chinese characteristics and promoting the popularization of Marxism requires not only following scientific theories [15], but also allowing people to focus more on thinking about practical issues and breaking through the inherent Marxist theory dissemination model. Internet public opinion is a new thing that has emerged in recent years and continues to grow. Contribute to maintaining the dominance of my country's Marxist ideology [16]. The Internet can be used as an information dissemination tool to provide a propaganda platform for Marxist ideology, and it is easy to be used by the enemy, becoming a new battlefield for capitalist ideology against Marxist ideology [17].

On this basis, Zhejiang University ESE Engineering Center has developed a set of Internet-based vehicle management system. Users can use this system to realize vehicle reservation [19], vehicle rental and other functions. At the beginning of the design, this system did not consider the situation of a large number of users, only a single server was used, and the architecture was relatively backward [20].

Alipay's "Double Eleven" flash sale promotion and Tencent's WeChat Spring Festival "Shake it for Red Envelopes"

campaign [21] have created miracles that the concurrent transaction volume per unit time far exceeds the peak transaction volume per unit time of major state-owned commercial banks. The architecture does not comply with the X/Open XA distributed transaction management protocol [22].

## 2. THE PROPOSED METHODOLOGY

### 2.1 The Distributed Internet Architecture

Data packets are captured through the configuration of key devices (such as the NetFlow function of Cisco routers) or packet capture software (such as Tcpdump), and the collection granularity and monitoring information can be customized according to test requirements [23]. Some measurements (such as topology discovery) require a combination of active detection and network management data.

An important principle of distributed system design is low coupling, minimizing the interdependence between various subsystems. However [24], each module in a distributed system needs to coordinate and cooperate, and each process also needs to communicate. Remote procedure call RPC and message queue are commonly used technologies in distributed system design. Among these distributed technologies, in order to respond more quickly to the needs of business departments, system changes and applications are frequently launched, and it is difficult to control operational accidents caused by changes.

The main control station is responsible for receiving measurement and analysis requests, and issuing measurement and analysis instructions to realize the scheduling of measurement and analysis tasks and the output of results, and is responsible for the management of the entire system. The service proxy for analysis requests is responsible for receiving measurement and analysis requests from users. The data source layer is composed of structured and unstructured data distributed in multiple application systems in the network, which can be either data in a database or a Document data; the data processing layer mainly extracts the original data from the relevant application systems or documents, and performs a series of processing on these data and saves them in a file in a defined and standardized format.

### 2.2 The Marxist Ideology

AbbitMQ Server. RabbitMQ Server, also called broker Server, maintains a path from producers to consumers. Among them, two components, Exchange and Queue, are also included. Exchange is where producers publish messages. The database operation pressure is outstanding. The infrastructure of the core business system, especially the database, is getting bigger and bigger, and there is no experience of manufacturers and foreign counterparts to learn from. It is necessary to "cross the river by feeling the stones". We often encounter some small-probability "first failures", and once the highly centralized database fails, the entire bank will be shut down.

As a foreign culture, Marxism has a process of gradual formation, development and improvement. However, when it was first introduced into China, due to the lack of translation conditions and dissemination mechanisms at that time, it caused certain difficulties for most people to understand the theory. had a strong impact on our country. As Huntington put it in "The Clash of Civilizations and the Reconstruction of the World Order," these "cultural empires" took advantage of their economic dominance to impose their "methods of economic, political, and cultural control on other nations." the result must be that the cultures of developing countries are

often controlled, invaded or even replaced by Western cultures. Media public opinion and ideology are inherently inseparable.

In Marx's eyes, ideology is an important basis and leading ideology for judging national interests, and it is an important issue related to whether the cause of human social liberation can be accomplished. Before the popularization of network information technology, the forms of popularization of Marxism mainly include: translation and publication of Marxist classics, creation of Marxist-related magazines and publications, articles and reports, school ideological and political theory courses, and Marxist forum lectures, etc. The traditional logos concept holds that all spiritual culture can reflect or metaphorize a certain value rationality, and all belong to or cover a certain ideology. With the deepening of reform and the deepening of openness, the market

The further development of the economy and the strengthening of the internationalization trend have all contributed to the diversification of social thoughts in our country. For example, Mr. Ma Licheng pointed out on different occasions that there are eight major social ideological trends in my country today, including Deng Xiaoping thought, old left thought, new left thought, liberal thought, and democratic socialist thought.

### 2.3 The Intelligent Network Modeling for Effective Communication of Marxist Ideology

Online public opinion has gradually become a habitual way of discussing matters of the general public, which has also brought new opportunities and challenges to the construction of mainstream ideology in our country. Expressing intentions without hesitation, resulting in deviations in the orientation of public opinion. Theoretical innovation is also a consistent principle followed by the Party's theoretical development in the process of Sinicization of Marxism. From Mao Zedong Thought to Deng Xiaoping Theory, the important thought of "Three Represents", the Scientific Outlook on Development and then to Xi Jinping's Thought on Socialism with Chinese Characteristics for a New Era.

Among them,  $m$  is the total number of samples,  $k$  is the number of clusters,  $B_k$  is the inter-cluster covariance matrix,  $W_k$  is the intra-cluster covariance matrix, and  $tr$  is the trace of the matrix.

Realize the organic combination of Chinese and Western cultures and promote the scientific development of Marxist theory. Secondly, starting from the people's livelihood, pay attention to people's development and spiritual improvement, and solve practical problems of people. In order to effectively promote the popularization of Marxist theory, it is necessary to make people truly recognize Marxism from the heart. The homepage of the mobile mall APP adopts the most commonly used entry-direction homepage interface design scheme, which makes the homepage no longer a real consumption activity And the main scene of the dialogue with the user, but more of a diversion role. The layout of the home page is in the form of a grid, so as to simplify the presentation of the content of the home page. It is necessary to return to the classic texts of Marxism, read and think deeply, strengthen the theoretical foundation, and increase the degree of understanding. The essence of Marxist theory is to continuously make self-renewal and development in combination with practice, but this adjustment and update is not completely separated from or cast aside the classics, but through a larger number.

### 3. CONCLUSIONS

The construction of Marxist ideology in the Internet age should be "retreat" and "pragmatic". Although this paper mainly discusses the construction of Marxist ideology in the Internet age from the perspective of superstructure such as theory, thought, and concept. In the front end of HTTP service and UDP service, we have built a load balancing server. The number of HTTP servers and UDP servers can be added and removed as traffic changes. In order to make the back-end HTTP server and UDP server load more balanced, we have adopted a round-robin strategy, which also brings more challenges to the system architecture design and the key technologies adopted.

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# First-Principles Intelligent Modeling and Research of High-Voltage Lithium-Free $\text{Li}_x\text{CoO}_2$

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**Abstract:** In this paper, intelligent modeling and analysis of the first principles of high-voltage delithiation of titanium are carried out. The bulk structure of lithium-ion battery cathode materials is simulated and calculated. In order to obtain more accurate lattice constants, we first use the program software package to optimize its structure. Using first principles to delithiate the lithium-ion battery cathode materials the product  $\text{Li}_x\text{CoO}_2$  and the volume geometry and electronic structure of  $\text{Li}_x\text{CoO}_2$  have been studied and analyzed in detail. The first principles method based on density functional theory was used to intelligently model the delithiated oxygen vacancies, and the results showed that the accuracy was 96.2%.

**Keywords:** High-Voltage System, Lithium-Free Model, First-Principles Intelligent, Smart Material

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## 1. INTRODUCTION

When  $\text{LiCoO}_2$  is used as the cathode material of lithium-ion batteries, the charge and discharge curve have a main charging platform at 3193V, and a small platform at 4107V and 4119V. The appearance of the voltage platform is related to the change in the crystal structure of  $\text{Li}_x\text{CoO}_2$ . In the coexistence zone, the platform turning point is the phase transition point. According to the literature, due to the extraction of Li, holes are generated on the  $t_2$  band, and the conductivity increases rapidly, and the transition from semiconductor behavior to metal conductor behavior occurs. This transition is a two-phase region. The driving force for existence. This is consistent with the experimental results of Imanishi et al. In 1992, Reimers first proposed that the  $\text{Li}_x\text{CoO}_2$  high-lithium region ( $0.175 < x < 0.193$ ) is the coexistence of the lithium-poor hexagonal phase and the lithium-rich hexagonal phase, and the hexagonal phase at  $x=0.15$  The coexistence of monoclinic and monoclinic phases. Yang et al. believed that monoclinic and hexagonal phases coexist in the low-lithium region, but Amatucci believes that there is only monoclinic phase in this region. In 1998, Ven used first-principles calculations to show that in high lithium There is no two-phase region. There is still much controversy about the change of the crystal structure of  $\text{Li}_x\text{CoO}_2$  with the value of  $x$  [1-8].

The synthesis temperature of  $\text{LiCoO}_2$ , the cathode material of lithium ion batteries, is often selected based on the characteristics of the X-ray diffraction pattern of the product, which conforms to the stoichiometry. The lithium atomic layer and the cobalt atomic layer are alternately distributed on both sides of the cubic densely packed oxygen atomic layer. The crystal structure of  $\text{LiCoO}_2$  has the best charge and discharge performance. However, when the reaction temperature changes in a large range ( $750^\circ\text{C} \sim 950^\circ\text{C}$ ), the X-ray diffraction pattern and charge-discharge performance change little, so the selection has a large randomness. The change of  $\text{LiCoO}_2$  crystal structure in such a wide temperature range is still inconclusive. Since the performance is closely related to the crystal structure, clarifying the characteristics of the crystal structure of  $\text{LiCoO}_2$  in this temperature range can provide a theoretical basis for a reasonable choice of synthesis temperature. In addition, clarifying the change of  $\text{LiCoO}_2$  crystal structure during

charging can help to take measures to effectively improve the overcharge resistance of  $\text{LiCoO}_2$  [8-14].

The electron diffraction results of  $\text{Li}_x\text{CoO}_2$  did not support the existence of this ordering phenomenon. Recently, Yang et al. used X-ray diffraction and electron diffraction to study the distortion of the monoclinic phase of the crystal lattice when the HT- $\text{LiCoO}_2$  was removed from Li to  $\text{Li}_{0.15}\text{CoO}_2$ , and lithium the phenomenon of ordering of ions and vacancies. They believe that the splitting of the observed diffraction peaks is mainly due to the transformation to the monoclinic crystal system caused by the shear deformation of the rhombohedral (i.e., trigonal) oxygen lattice. The appearance of additional diffraction spots on the electron diffraction spectrum of monoclinic  $\text{Li}_{0.15}\text{CoO}_2$  proves the idea of ordered arrangement of lithium/vacancies in the layer proposed by Reimers and Dahn. Yang et al. assumed that these reflect the spinel structure. The electron diffraction pattern can be fully explained by the special microstructure formed in  $\text{Li}_{0.15}\text{CoO}_2$  and the ordering of lithium, but they still believe that there is not enough experimental evidence to show that  $\text{Li}_x\text{CoO}_2$  changes from a layered to a spinel structure when Li is removed. Choi and Manthiran found Heating  $\text{Li}_{0.15}\text{CoO}_2$  above  $200^\circ\text{C}$  still maintains the layered structure, which proves the conclusion of Yang et al [16-19].

According to the atomic percentage of Li and Co of 1:1, 1.8g of  $\text{Li}_2\text{CO}_3$  and 3.9g of  $\text{Co}_3\text{O}_4$  were fully ball-milled and mixed, then packed in a porcelain boat, and synthesized by solid-phase reaction in a horizontal tubular resistance furnace. Firstly, pre-sintered at  $650^\circ\text{C}$  for 8h, and then sintered at  $750^\circ\text{C}$ ,  $800^\circ\text{C}$ ,  $850^\circ\text{C}$  and  $900^\circ\text{C}$  for 8h to obtain the synthesized product  $\text{LiCoO}_2$ . After cooling in the furnace, the product aggregates were rolled and dispersed to obtain samples for analysis. In order to solve the problems of lithium secondary batteries, lithium ion batteries have emerged. The principle of lithium battery and lithium ion battery is very similar, and the cathode material and electrolyte used are almost the same. However, the negative electrode materials they choose are quite different. The negative electrode material selected for lithium-ion batteries is carbon. Due to the layered properties of carbon, the reversible behavior can be guaranteed. Lithium batteries use metal as the negative electrode material. At the end of the decade, French scientists proposed two solutions to solve the problems in lithium

secondary batteries: all solid-state lithium metal secondary batteries, which are prepared using polymer solid electrolytes. The metal lithium electrode material can be replaced by materials containing lithium ions [21-24].

## 2. THE PROPOSED METHODOLOGY

### 2.1 The High-voltage $\text{Li}_x\text{CoO}_2$ $\text{Li}_x\text{CoO}_2$

In recent years, a large number of studies have stabilized the layered structure of  $\text{LiCoO}_2$  by doping  $\text{LiCoO}_2$  with transition metal elements such as Ni, Mn, and V, so that more lithium ions can be released during the charging process without destroying the structure, thereby Improve the anti-overcharge performance of  $\text{LiCoO}_2$ . In addition, the multiple phase transitions of the lithium ion insertion and extraction process have an important impact on the electrode performance. The structural changes in the phase transition process reduce the long-term cycle stability of the electrode, resulting in capacity decay and shortened life, and charging significant irreversible capacity loss will occur in the later stage. The doping modification suppresses the phase change caused by the insertion and extraction of lithium ions, thereby changing the electrode potential of the bulk material. The root cause is the change of the electronic energy level. Cender et al. used ab initio and first principle calculations and other theories. The study believes that the charge and discharge voltage is determined by the degree of oxygen ions involved in the exchange of electrons. This article studies the influence of the lithium ion insertion and extraction process on the crystal structure of  $\text{Li}_x\text{CoO}_2$ , which provides a basis for the design of new electrode materials. The electrode is the core of the lithium ion battery, and the positive electrode as one of the most important parts of the electrode, the material directly affects the performance of the battery. Therefore, for more than two decades, cathode materials have been the focus of research on lithium-ion batteries. For lithium-ion batteries, the positive electrode material should meet the following requirements to have good electrochemical activity, that is, the reversibility of the charge and discharge reaction is good, and its structure can remain stable when the electrode materials are deintercalated. This can make the battery cycle performance better and longer service life. With a higher electrode potential, that is, a higher discharge platform, the battery can have a higher specific energy and energy density, which is conducive to the development of the battery in the direction of miniaturization and light weight.

### 2.2 The First Principle Of High Voltage Delithiation State $\text{Li}_x\text{CoO}_2$

First-principles calculations are ab initio calculation methods that can derive the properties of the system without any empirical parameters. The development of first-principles calculation methods originated from the discovery of electrons in the century. The interaction problem is one of the hotspots of physics research, and some theories and calculation methods have been produced to deal with these problems. First-principles calculations were developed during this period.

The first principles are based on quantum mechanics and some basic laws of physics. According to the atomic composition of the studied material, self-consistent calculation methods are used to predict some properties of the structure, such as thermodynamic properties, optical properties, electronic structure, geometric structure and Transport performance, etc. The basic idea is to consider the solid as a multi-particle system composed of electrons and atomic nuclei, and then to maximize the "non-empirical"

processing and calculation of the problem based on the principles of quantum mechanics. Generally, first-principles calculations do not include any empirical parameters, but only involve the electronic structure of each component element and basic physical constants. Some physical properties of the material can be predicted. Compared with the experimental value, the error of the unit cell size calculated by the first principles is only a few percentage points. Other properties are also in good agreement with the experimental results, reflecting the maturity and reliability of the theory. Chemical extraction of alkali metal ions from alkali metal oxides There have been literature studies that chemically extract lithium ions from  $\text{LiCoO}_2$  instead of charging lithium-ion batteries to obtain  $\text{Li}_x\text{CoO}_2$  in a delithiated state, which greatly simplifies the preparation of X-ray diffraction and electron diffraction samples.

Because obtaining  $\text{Li}_x\text{CoO}_2$  in the delithiation state from the latter requires disassembling the charged battery, taking out the positive electrode foil, obtaining the positive electrode material (a mixture of  $\text{Li}_x\text{CoO}_2$ , acetylene black, graphite and binder) from the foil, and separating the positive electrode material to obtain the operation of the active material  $\text{Li}_x\text{CoO}_2$  is extremely cumbersome. More importantly, the Li content of the positive electrode active material particles obtained by electrochemical delithiation is often very different from the expected. This is due to the different sizes of  $\text{LiCoO}_2$  particles before charging, and the amount of Li ions removed. Different, the TEM sample prepared in this way cannot select particles with a predetermined Li content on the microgrid when doing electron diffraction. However, repeated experiments have shown that the amount of lithium ions extracted with  $\text{Na}_2\text{S}_2\text{O}_8$  chemically is limited, and the Li content in  $\text{LiCoO}_2$  cannot be reduced to Less than half.

### 2.3 The First-Principles Intelligent Modeling

The basic idea of using first principles to intelligently model the electronic ground state of a multi-particle system (material) is as follows: the various physical properties of the material are determined by the multi-particle system composed of atomic nuclei and electrons. In principle, as long as the equations of multi-particle systems are written and intelligently modeled, various physical and chemical properties of solids can be calculated. Therefore, to understand the properties of materials, we must first start from the Schrödinger equation of the many-body system: Since the mass of electrons is much smaller than the mass of the nucleus (about twice), when the electron is moving at high speed, the slow motion of the nucleus can only follow its the distribution of electrons changes.

When considering electrons, one can ignore the nucleus and just treat it as a fixed one. The interaction between the movement of electrons and the movement of the nucleus in Hamilton is regarded as a kind of perturbation, which is the so-called approximation or adiabatic approximation. Due to the approximate treatment, the goal of separating the movement of the nucleus and the movement of the electrons in the multi-particle system is achieved. When considering the movement of electrons, the nucleus is approximately regarded as fixed, and the electrons move in the potential field formed by the nucleus. If the relative position of the nucleus changes, the movement state of the electrons will also change accordingly. Based on this, it is necessary for us to attribute the repulsive energy between nuclei to the energy of the electronic system. Since the repulsive potential between nuclei is only related to the position of the nucleus, as long as

the position of the nucleus is determined, then it only affects the total energy of the electronic system, not the electronic wave function, so we are intelligently modeling electronic energy and electronic wave function. At this time, the repulsive energy between the nuclei is not counted first, and finally the repulsive energy between the nuclei is directly added to the electron energy. Therefore, the kinetic energy of the nucleus is zero. After adiabatic approximation, the multi-particle problem is transformed into a multi-electron problem, but the library-enterprise interaction term between electrons and electrons still exists, so the wave function of the system cannot be written as a single-electron wave function product. In the form of, that is, it is impossible to separate the coordinates of one electron from the coordinates of other electrons. Therefore, it is still difficult to model intelligently.

### 3. CONCLUSIONS

This article mainly focuses on the theoretical research on the physical problems of high-voltage delithiation LiCoO<sub>2</sub> when the layered cathode material of lithium-ion batteries is charged. By adopting the first-principles pseudopotential method based on density functional theory to systematically study and analyze the bulk geometry and electronic structure of cathode materials, and theoretically analyze and explain that oxide coating can improve its structure the essence of stability and cycling performance. It provides good reference data for the experimental and theoretical research on improving the cathode material in the future.

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# The Development of College Psychological Counseling Platform Based on Visual Basic in Cloud Environment

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**Abstract:** This process is developed into an automatic program by using Visual Basic language software, and the solution of building a network-based psychological counseling information platform for colleges and universities is introduced, and the Guan Qian technology involving Xiamen is introduced. It provides a scientific, advanced and efficient modern management platform for Gaoling's psychological counseling and management work, and realizes effective counseling and prevention of college students' psychological crisis. This paper analyzes the current development status of ideological and political education in colleges and universities and the problems that need to be solved urgently, and analyzes the hidden depth behind the application dilemma of the current psychological counseling method from the four aspects of education subject, object, mediator and ring body. Hierarchical reasons.

**Keywords:** College Psychological Counseling, Visual Basic, Cloud Environment

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## 1. INTRODUCTION

As the cradle of cultivating talents across the century, colleges and universities must not only improve students' cultural quality, ideological quality, and professional quality, but also cultivate students' good psychological quality [1], because healthy psychology is an important prerequisite for college students to receive ideological and political education and scientific and cultural knowledge. Rated load is divided into rated dynamic load and rated static load [2]. The rated dynamic load refers to the constant load (divided into radial and axial) that a set of rolling bearings can theoretically bear. Under the action of this load, the rated life of the bearing is one million revolutions [3]. It includes symmetrical passwords and asymmetrical The cipher, which may be a block cipher, or a sequence cipher, may be used. The underlying technology of file encryption is data encryption [4].

The Glove security door adopts a symmetric password. The report of the 17th National Congress of the Communist Party of China pointed out: "To strengthen and improve ideological and political work, we must pay attention to humanistic care and psychological counseling, and deal with interpersonal relationships in a correct way." The important method is the concrete embodiment of the idea of people-oriented ideological and political work [5]. Secondly, ideological and political education has a multidisciplinary background, and the means and methods used are more diverse, and it can integrate a variety of means, exert a synergistic effect, and achieve psychological counseling [6]. Finally, medicine and psychology are more correct to study diseases. A large number of studies on college students' psychological problems and mental health education have found that the common psychological problems of college students are concentrated in employment, study, interpersonal relationships, emotions, love, etc. aspects of life that are closely connected [7].

Taking disease as one's own research object, it is often easy to ignore people's emotions, and curing the disease is also achieving psychological counseling. College students are at an important turning point in their lives, and mental health problems are particularly prominent [8]. Mental health problems have an extraordinary impact on school stability and

the construction of a harmonious society [9]. Therefore, it is a top priority for every college teacher and management staff to effectively guide the problems that cause college students' mental health. It is helpful to enrich the methods of ideological and political education [10].

The psychological counseling model of ideological and political education has opened up a new research perspective on the basis of the original theory and practice [11]. Through the psychological counseling of ideological and political education, the educated can fully express their emotions and thoughts in the process of emotional communication and cognitive exploration, and eliminate the obstacles between the educator and the educated as much as possible [12]. College students are in an important life During the transition period, mental health problems are particularly prominent, and mental health problems have an extraordinary impact on school stability and the construction of a harmonious society" [13].

The file system is an important part of the operating system. The Glove security door encrypts the input and output operations of files or the organization and storage of files. Encrypt dynamic files by familiarizing themselves with the details of the file system [14]. The relationship between the operation and control file system and other parts of the operating system. The rated static load refers to the total permanent deformation of the rolling element and the raceway that acts on the bearing when the relative rotational speed of the bearing ring is zero, which is about the diameter of the rolling element [15]. The load of one ten thousandth of the stress. Paying attention to people's mental health and spiritual pursuit is an important symbol of social progress and the inherent requirement of human development, and it is also an important content of ideological and political work in colleges and universities in the new era [16].

Ideological and political education in colleges and universities is to guide college students to establish a correct world outlook, outlook on life and values under the guidance of Marxism-Leninism theory [17], and to teach them with the thought of the core value system of socialism with Chinese characteristics, improve their ideological awareness, and enhance their understanding of the world and the world. The

ability to change the world. In his reply letter to Peking University students, General Secretary Xi Jinping said: The Chinese dream is the dream of the country, the nation, and the dream of every Chinese, including the young people. The key to realizing the Chinese dream lies in education [18], and the fundamental purpose of education is to in order to cultivate a firm political stand, the author combines database technology and network technology to develop a network-based psychological counseling information platform for colleges and universities, aiming to use network information technology to effectively manage college students' psychological quality and ideological dynamic information.

## 2. THE PROPOSED METHODOLOGY

### 2.1 The Model of Visual Basic

VisualBasic is a software development tool based on the BASIC language launched by Microsoft Corporation of the United States. It is an object-based visual programming language. Encryption of data files: Glove security gate adopts different encryption methods for different file types, and has different encryption methods for text, compression, etc. The file with the suffix name is encrypted by the path, and the encrypted file still exists, but the system cannot find the path and cannot open it. First of all, the calculation process of rated dynamic load and rated static load of different types of rolling bearings is distinguished.

Use VisualBasic multi-form function, edit all levels of parent and child menus through the menu editor, and use command buttons to enter, convert, and exit between each form. Features Software and key separation technology: Glove security door has no key, and the key to unlock is determined. The unique line algorithm, which is stored in the non-computer Disk, realizes the separation of the key algorithm from the computer and software, improves security, and resists cracking. Human is the unity of body, mind and spirit, and physical condition, mental condition and spiritual outlook are trinity, influence each other and interact with each other. The client display layer provides the client with a graphical interface for application services. The business logic layer is located between the display layer and the data layer, encapsulates the application model associated with the system, and separates the user presentation layer from the database code. When calculating the rated load, you need to find the load coefficients  $f_c$  and  $f_o$ . You can use the array tool to convert all  $f_c$ ,  $f_o$  values are stored for flexible calls in the calculation process. ) Encryption of data files: Glove security door adopts different encryption methods for different file types, and implements path encryption for files with suffix names such as text and compression. The encrypted files still exist, but the system cannot find the path, so it cannot be opened. The variables required by the VisualBasic program include input variables, calculation variables, and output variables. Input variables are known parameters entered manually in each sub-form of the program, generally bearing parameters related to the calculation of rated load.

### 2.2 The Development of Psychological Counseling Platform in Colleges and Universities

By caring about and paying attention to the physical health of teachers and students, guide teachers and students to cherish their own bodies, accept their bodies, and awaken their deep love and identity for themselves; through mental health knowledge training, help teachers and students to improve their psychological quality and cultivate excellent Personality,

values and outlook on life should be used as theoretical guidance to promote patriotism, dedication, integrity, friendliness, and strengthen the ideals and beliefs of socialism with Chinese characteristics. Only by establishing a correct world outlook, outlook on life and values can we have a healthy mind, and only on this basis can a true Marxist-Leninist world outlook be established.

Differences in one's own cognition and adjustment ability can easily lead to such and other psychological problems in study and life. If they cannot be eased in time, it will easily lead to a series of problems. Therefore, timely investigation and discovery of college students. Information platform for psychological counseling in colleges and universities, to Psychological knowledge education and counseling are combined to design the function of psychological counseling platform, and its functional structure is shown in Figure 2. The research on humanistic care and psychological counseling for college students is relatively systematic, but due to the differences in concepts, there are few studies on the combination of ideological and political education and psychological counseling. But in general, the research on psychological counseling of various foreign schools has important reference significance for this article. Users with different permissions must be authenticated before they can enter their respective operating procedures, and the most commonly used method of identity authentication is to use Different user names and user passwords.

These user information are stored in a database. By formulating a sound psychological counseling work system and a standardized management system, it provides students with professional and scientific psychological services, making the psychological counseling center the main place for teachers and students to provide psychological counseling. Give full play to the role of psychological counseling institutions in psychological counseling. Colleges and universities should pay attention to the respect needs of college students in the ideological and political education work, and should do multi-level guidance work according to the psychological characteristics of college students to meet their respect needs. First of all, in the way of education, the rational use of incentive methods.

### 2.3 The Development of Visual Basic in College Psychological Counseling Platform

Calculation variables include variables temporarily called in the calculation process, and are generally automatically assigned initial values by the system; output variables are the final calculation results, which can be output using controls such as text boxes. In the process of building the program, the respective data types should be defined according to the required precision of each variable. The Glove security door can encrypt the folder, and the encrypted folder cannot be opened or deleted, which effectively improves the security. Types of files are encrypted in a folder for convenience. It is not only necessary but feasible to give full play to the role of full-time student work cadres in the psychological counseling of college students. At present, the personnel of psychological counseling institutions in colleges and universities in my country mainly include full-time and part-time teachers who graduated from psychology and psychological counseling, medical staff, and moral education teachers and counselors specializing in ideological and political education of college students.

With the gradual increase of media methods, ideological and political educators in colleges and universities should make

full use of this resource advantage, establish an information-based counseling platform, and provide convenient and effective psychological counseling services. First of all, ideological and political educators in colleges and universities have established a website dedicated to the mental health of college students on the campus network, and popularized the knowledge of mental health among college students through the Internet. Psychological counseling has begun to take shape. A psychological counseling network has been established at both levels, but most of the work still follows the traditional filling mode. Psychological counseling in ideological and political education should have empathy. Empathy is a core concept in counseling psychology, a complex phenomenon used to describe the attitudes and behaviors of effective counseling professionals. Its basic meaning is to stand in the perspective of the visitor and look at the problem from the heart to the heart.

NET is an application platform based on web applications released by Microsoft, which provides a standard object-oriented development environment, which can not only interact with objects locally, but also through webservice and .NET Remoting technology interacts with objects remotely. When calculating the rated load, you need to find the load coefficients  $f_c$  and  $f_o$ . You can use the array tool to store all the  $f_c$  and  $f_o$  values, so that you can call them flexibly during the calculation process. Psychological counseling is to use the principles and techniques of psychology to guide and help college students with problems in study, adaptation, communication, love, career selection, self-development, etc., so as to improve their psychological quality. Detail files of medical records of mentally unhealthy students Log in from the counselor's page by the psychological counselor of his unit and submit it to the medical record database, including a detailed description of the student's psychological condition and behavior.

### 3. CONCLUSIONS

Under Windows system, it is not necessary to install Visual Basic language software, this file can complete the programmed calculation of rated load of various rolling bearings. And the key technology of platform construction is introduced, and the system is realized by .NET technology and database technology. The system designed in this paper has been successfully debugged and works well. The establishment of the system provides a scientific AD0. NET technology can quickly and easily realize data access, and other component-oriented programming features ensure the complete realization of the system. The database adopts SQL server 2000 database management system”.

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# Application of Intelligent Technology in Intelligent Building Integrated Management Platform in Multi-Dimensional Data Environment: Based on MySQL

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**Abstract:** Query efficiency has always been a key factor in measuring database performance. With the rapid increase of the total amount of data in the network environment, more stringent requirements are placed on the response time of database queries. Aiming at the current popular open-source database MySQL, this paper analyzes the implementation process of executing SQL query statements and obtains the objective factors that affect the efficiency of query execution. On this basis, several practical and feasible performance optimization methods are proposed. The integrated energy management of collaborative smart buildings is introduced, which can promote the development of the industry.

**Keywords:** Application of Intelligent Technology, Intelligent Building Integrated Management Platform, Multi-Dimensional Data Environment, MySQL

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## 1. INTRODUCTION

The status quo of traditional intelligent buildings: the overall intelligence level is not high, the intelligent building subsystems have not been highly integrated, the operation and maintenance of intelligent buildings has not realized self-discovery and self-diagnosis, the intelligent zed subsystems are relatively isolated, and the data between systems is not integrated [1]. In the process of continuous development of the market economy, the overall pattern of SMEs is also constantly changing, and their competitive environment is also different from before [2]. Old-fashioned and outdated management models and inherently stubborn management concepts have hindered the development and progress of enterprises. Therefore, only by resorting to more automation. In the era of big data [3], traditional relational database management systems (RDBMS) have experienced severe performance challenges when dealing with massive data [4]. The improvement of database performance is closely related to the execution efficiency of data query [5].

BIM technology is an information management technology for the whole life cycle of a project based on a three-dimensional building model [6]. It is currently widely used in construction and railway projects. For the construction of integrated pipe gallery [7], BIM technology can pass the visualization and collision checking functions in the design process. The "Twelfth Five-Year" Development Plan for the Internet of Things clarifies the twelve key application areas of the Internet of Things technology [8], including smart cities, smart grids, transportation, logistics industry, medical health, smart home, environment and safety monitoring, fine agriculture Animal husbandry, industry and automatic control, finance and service industry, public safety and defense and military. With the development of Internet of Things [9], big data, cloud computing, and artificial intelligence technologies, people have higher and higher requirements for various intelligent experiences in buildings. How to meet people's growing needs is a problem that people in the industry need to consider deeply. In today's rapid iterative update of the Internet, the C/S architecture has been unable to meet its rapidly changing needs. Based on this, the B/S architecture is composed of a browser-to-server architecture system [10].

which can adapt to the corresponding enterprise development needs more quickly and become [11] a more supportive and deformable software system architecture. MySQL database has been widely used because of its advantages of open source [12], fast running speed and less disk space occupation, especially in the background application of small and medium WEB websites [13]. For the standard segment model of the pipe gallery, because it is similar to the linear engineering design mode of the road, ORD can be used to model the standard segment of the pipe gallery. The modeling process of the standard section of the pipe gallery is as follows. With the development of my country's economy and the acceleration of urbanization, the current energy consumption of buildings during operation accounts for about 30% of the total social energy consumption, and continues to increase, resulting in unreasonable energy use and environmental pollution. [14]

The problem is becoming more and more prominent. Smart buildings are based on smart buildings [15], widely collect building, mechanical and electrical facilities, environment, operation, service quality [16], energy consumption, cost, human behavior and other information through the Internet of Things technology, establish a big data center, and comprehensively utilize the large data of buildings. Data intelligence platform. The network architecture system of the B/S mode is very different from the traditional client mode, which is embodied in the module integration of the B/S architecture system through the software system [17]. The integrated module performance shows greater convenience for the overall system development and maintenance. The validity of the syntax tree in step (3) is checked by the preprocessor. A new parse tree is generated by logically judging each node in the tree, but the structure of the tree remains unchanged. If there is a semantic error such as the required database object does not exist, or the alias has the same name [18].

feedback will be reported. Designers use ORD software's Geometry menu to complete the plan and profile design of the pipe gallery centerline. The intersection method and element method provided by the software are more in line with the designer's operating habits, and the "table editor" function is also convenient for modifying the centerline control parameters when design changes occur. In the entire energy

saving cycle of a building, the energy saving during the construction period accounts for about 25%, and the energy saving maintenance and operation management during the operation period can reach 75% of the total energy saving.

## 2. THE PROPOSED METHODOLOGY

### 2.1 The Application of Intelligent Technology

Therefore, if the intelligent building is realized, the energy saving rate of the building can be increased by 20% to 25%. The importance of intelligence is reflected in the later management. In actual work, no matter whether it is design or construction, intelligence belongs to the post-procedure profession, so professional coordination is more important, so as to avoid a large number of design changes. In the 3D BIM development platform, the intelligentization major and other majors., there is no need to install the corresponding client software, users only need to have Baidu, Google, Firefox, and other browsers, they can operate the corresponding architecture system through the corresponding web page. SQL optimization by the query optimizer, both logical and physical. The logic optimization is based on relational algebra, and the relational algebra syntax tree is generated after adjusting the nodes of the parse tree. The physical optimization is based on the principle of selecting the minimum cost, and further the query connection order and scanning method. Use the "Import Template" function of the "Corridor" menu of the ORD software to import the drawn cross section of the pipe gallery into the template library.

dig holes for the water supply, reclaimed water and gas pipelines. After the cross-section geometric elements are created, layers, element templates, feature symbols, and feature definitions need to be configured for each type of pipeline., To achieve intelligent management, an effective intelligent system is needed, which is not only a management tool, but also a good management platform, scientifically and rationally use these hardware products, and collect real-time energy consumption data to guide energy conservation. There are many intelligent professional subsystems, different system architectures, and various types of equipment. When using CAD for two-dimensional drawing, the engineering quantity statistics of front-end equipment and bridge pipelines is a big problem, and missing items or quantity statistics often occur in the design. inaccurate situation. If the software system adopts the B/S architecture, when users query various information such as pictures, texts and data, it is not necessary to rely on the client for corresponding access.

if the corresponding access is performed through the corresponding browser installed by the user. According to the execution plan generated by the optimizer, the executor calls the appropriate storage engine API, such as InnoDB, MyISAM, etc., to complete the execution of the query and return the result. Through the "Architectural Design" and "Structural Design" menus of OBD, designers can use functions such as walls, beams, slabs, and columns to model the pipe gallery structure at the nodes. The software provides a variety of component categories and styles, which include detailed information such as component material, size, and performance. The designer needs to set the detailed properties of the component according to the design scheme., to meet the urgent requirements of energy conservation management of intelligent buildings in China at present and in the future, provide an important means for energy conservation and consumption reduction in public buildings, and contribute to

energy conservation and consumption reduction projects while creating benefits.

### 2.2 The Intelligent Building Integrated Management Platform

As a result, it is necessary to repeatedly check the amount with the cost consultant in the later stage. During the construction, the owner often needs additional investment due to design problems. Intelligent majors can start designing on the basis of other professional models, and engineering quantities can be automatically counted. After setting the appropriate mapping relationship between components and equipment models, with the rapid development of the Internet and continuous updating and iteration, the database has become more and more extensive. Applications. With the development of databases, various types with different functions have been produced. Among them, SQL Server databases and MySQL databases are widely used. A SQL statement can be parsed into a variety of different execution strategies. From the perspective of query cost, the MySQL query optimizer calculates and judges whether the total query overhead including CPU utilization, I/O waiting time, network transmission, etc. is the lowest, Pipeline layout: Through the "Equipment Design" menu of OBD, the designer uses functions such as pipes.

pipe fittings, and pipe accessories to set information such as pipe diameter and elevation to lay out the pipelines inside the pipe gallery. It is worth noting that the basic configuration of the component should be consistent with the standard section. SynchroEMS (SynchroEMS) is an integrated energy management platform for buildings during operation. The system is based on data warehouse technology, integrates massive historical energy consumption data, and can directly obtain a detailed equipment list, which can directly reduce the workload and difficulty of intelligent design, so that designers can focus on the real design process, thereby improving Design efficiency and quality. MySQL database has the characteristics of small memory occupation, relatively low development cost, relatively fast running speed.

### 2.3 The Multi-Dimensional Data Environment: Based on Mysql

support a variety of computer programming languages, and its corresponding source code is free. Therefore, MySQL database is popular among small and medium-sized websites and corresponding enterprises. 's trust. Although the query optimizer realizes automatic optimization by combining the configuration parameters of the database system, data dictionary and other information, the DBA should not only rely on the query optimization module, especially when the target data volume is large. Model information is very important in BIM applications. Designers can create and mount pipe gallery information according to project requirements and analyze the content, and then view or modify it through "Properties"; Integration plays an important supporting role. The platform is suitable for government departments, industry associations, group-level enterprises, and property management departments to realize the collection, storage, statistical analysis, energy-saving diagnosis, and optimization control of various energy consumption data of the whole country.

a certain region (region), a park, and a single building. and general management. Due to the complex pipelines of engineering construction projects, all pipeline collision problems cannot be well solved in the design stage, and the



pipeline collision detection and positioning functions brought by the information elements of the model greatly reduce or even eliminate the drawing pipeline collision problems when approaching the site. Since its source code is free, any user can download and use its source code, so enterprises can further reduce the corresponding development and design costs during the corresponding development and design. No index is created for the key column of the data table, or the index column is not used in the WHERE, HAVING, ON and ORDER BY clauses. This will cause the query engine to be unable to utilize the index and be forced to perform a full table scan, increasing the disk I/O overhead. This project is model finalized in ORD by way of reference link.

This method is very suitable for long line and large-scale engineering integration. The way of reference link is equivalent to the mapping combination of multiple files, which will not occupy too much computer resources. The platform also provides unified development and configuration tools, data access services, system management tools, and information display platforms, etc., which can meet the application needs of different users of the system and provide the function of reporting data to higher-level energy centers.

### 3. CONCLUSIONS

The goal of MySQL database query performance optimization is to reduce the response time of SQL statement execution. In addition to the optimization mechanism provided by MySQL itself, the query performance is improved, and practice has proved that establishing an appropriate index and fully referencing the index through efficient SQL statements can achieve better execution efficiency. The integrated energy management platform for collaborative smart buildings is a typical application example based on IoT technology and oriented to smart city applications. Realize on-demand energy supply, intelligent adjustment, avoid waste, and ultimately help users improve energy conservation and reduce operating costs.

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# Construction and Software Realization of Modern Digital Training Platform Based on Digital Media Technology

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**Abstract:** Aiming at a series of drawbacks in the construction and teaching process of digital engineering training centers in colleges and universities in my country, combined with the system construction experience and achievements of the digital engineering training platform of real scenarios, suggestions for the construction of digital engineering training centers are put forward. Digital media technology is a new type of digital and multimedia communication media under the Internet platform, and its current application fields are quite extensive. This paper analyzes the demand for the professional ability and professional quality of high-tech applied talents for the positions that digital media technology majors face, and builds a modern digital training platform based on digital media.

**Keywords:** Modern Digital, Training Platform, Digital Media, Software Realization

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## 1. INTRODUCTION

The Ministry of Education mentioned in the "Several Opinions on Comprehensively Improving the Teaching Quality of Higher Vocational Education" [1]: "Pay attention to the use of high-quality teaching resources and network information resources, take modern information technology as an important means to improve the quality of teaching, and continuously promote the sharing of teaching resources. Building and sharing [2], and improving the use efficiency of high-quality teaching resources." In the context of modern higher vocational education, vocational colleges all over the country have fully realized the importance of information technology [3] in the construction of professional digital teaching resources, and have intensified efforts to develop resources. Fully developed. With the improvement of infrastructure [4], the problem of resource construction continues to appear: the problem of more resources and less quality products often occurs; high construction rate and low utilization rate are accompanied [5].

The repeated construction of similar or identical courses in major institutions is a serious problem [6]. The phenomenon of "form over content" appears in the development of digital resources, which cannot truly reflect the connotation of the development of professional digital teaching resources [7]. The 21st century is an era of informatization and networking. The widespread application of information technology has triggered revolutionary changes in all areas of human life [8]. Informatization refers to the process of developing, utilizing and accumulating information into resources, and its basis is to generate a large amount of information through digital means [9]. All fields of human civilization are more or less converted into digital information and stored, which can not only preserve and integrate their complete specifications, and display them in different forms [10], but also mine and develop massive information data to find more information. valuable resources [11]. Informatization education is the application of information technology in the field of education. It introduces network technology, computer technology, communication technology [12], etc. into teaching, providing solid environmental support and diversified services for the improvement of education and teaching quality; limit [13].

Through network and corporate interviews, we have investigated more than 100 companies in network

technology/computer information technology [14], advertising media, decoration, real estate, product development and design, animation, film and television multimedia production, and learned that the network digital media industry is mainly engaged in three aspects [15]: The first is the development of CG game products, the second is the development of film and television animation products [16], and the third is the development of web-based virtual display of products. The most in-demand positions in this industry are: 3D modeler, virtual reality designer, WEB designer [17], etc. The skill requirements of these positions are mainly related to 3D production, virtual product realization, and WEB product development [18]. In the teaching process of colleges and universities, how to change the indoctrination teaching mode so that students can learn the teaching content of this course independently has become the main direction of teaching reform [19]. By improving the teaching concept of teachers, the reform of education is gradually implemented. In the promotion of teaching reform, middle schools can organize all teachers to study the teaching plan and teaching requirements of the new curriculum reform in a unified way. It is a shortcoming in current education [20].

In the future education reform, how should teachers implement their educational responsibilities [21]. To sum up, higher vocational education in Hebei Province is already comparable to general higher education in scale, but there are still backward educational concepts, relatively shortage of high-quality educational resources [22], unbalanced regional education development, and the ability of education to serve economic and social development needs to be further improved. strengthening, etc. [23] Under the guidance of national policies, the use of advanced information technology means to realize the integration and sharing of teaching resources, and promote the characteristic development of higher vocational education [24], so as to better promote the scientific development of education in our province, improve the quality of the whole people, and better serve Hebei Modernization construction services. In view of the problems existing in the informatization process of higher vocational education and the close connection between higher vocational education and regional economic development.

## 2. THE PROPOSED METHODOLOGY

### 2.1 The Digital Media Technology

The construction of the computer multimedia technology teaching resource library can concentrate the high-quality resources of vocational college education and management of multimedia-related industries and enterprises, form a good co-construction and sharing mechanism, promote the development of education informatization, improve the quality of personnel training and the social popularization of professional knowledge, which is embodied in: For higher vocational colleges, the construction of digital teaching resources is a relatively unfamiliar field, but it is an indispensable part of connotation construction. Each college waits and sees each other in the process of resource construction, trying to find applicable experience. Or unified standard templates for their own use. However, the current situation of the chaotic process of resource production, collection and integration has resulted in that although higher vocational colleges have no construction experience, in order not to lag behind other similar colleges and universities, they do not have reasonable planning and design. Under the blind construction, ignoring the quality of resources, standardized management and healthy development of resources.

On this eve, during the investigation process, we found that because the higher vocational colleges have invested a certain amount of manpower and material resources in the process of resource construction, their willingness to share resources with other higher vocational colleges is low, and there is little exchange and cooperation between colleges and universities. . Recently, there has been a wave of chalk writing on the Tsinghua campus. Because of the chalk writing competition held every year on the Tsinghua campus, teachers use chalk on the blackboard to write Mao Zedong's poetry collection, the work report of the 19th National Congress of the Communist Party of China, and the school motto of the Tsinghua campus. etc. Many students exclaimed that only after seeing the teacher's chalk writing did they know who the originals of the block script and running script copybooks purchased online were. We can imagine that the digital education level of the Tsinghua campus is already the first-class level of the current digital campus in my country, but why hold a chalk writing conference?

Because through a simple piece of chalk, the teacher can pass on his knowledge to the students, and the students will be influenced by the teacher between the lines. This cannot be replaced by digital information technology teaching. In the process of application of digital information technology.

### 2.2 The Modern Digital Training Platform

The construction of professional standards is the foundation of professional development. In the process of formulating and practicing professional standards, it is necessary to carry out a sufficient investigation and discussion process to ensure the full guidance and participation of advanced enterprises in the industry, so as to achieve professional compliance with industry standards and accurate positioning, in principle. The construction and application of digital teaching resources plays an important role in promoting the modernization of education and the connotation development of higher vocational colleges. In fact, the attitude of many colleges and universities towards the construction of digital teaching resources remains in response to government-level development policies. Resource construction is a mere formality, and the promotion, application and update of resources are ignored.

Most of the resources displayed on the school's online teaching platform come from the Yunnan Provincial Educational School Excellent Course Construction Plan in 2008. Since the higher-level ministries have no rigid requirements for digital teaching resources, the subjective awareness of the school's construction resources is low, and the work is also in the information. It is mainly placed on hardware troubleshooting and network support of various ports. Students did not know the school's online teaching platform, and teachers did not guide their digital learning. In the process of information technology application in colleges and universities, many multimedia teaching courseware has played an important interactive role, and the application frequency is the highest in the process of college information technology teaching. Comparing the multimedia teaching mode with the traditional teaching method, the multimedia teaching courseware used in modern colleges and universities is more attractive, because there are not only many intuitive video materials in the multimedia courseware, but also using Internet information technology, it can also conduct cross-cultural and cross-cultural teaching. Regional educational exchanges have brought more directions to teachers' teaching reform, and the way of learning social work has also changed a lot.

Carry out a wide range of talent training research in similar higher vocational colleges across the country. If conditions permit, the scope of the research can be extended to foreign countries. At the same time as reference and reference, it is necessary to fully consider the characteristics and characteristics of regional development.

### 2.3 The Construction of Modern Training Platform Based on Digital Media

On the basis of the professional talent training plan, a professional curriculum system is formulated. The curriculum system consists of professional core courses, professional support courses, and extended courses. Among them, the professional core courses are courses that reflect the core skills of the profession, and the professional support courses are the support of the core courses. and basic support courses. Step 4: Design a practical teaching system that meets the needs of teaching and employment In view of the special status of practical teaching in higher vocational colleges, we will conduct in-depth research on the new practical teaching system for majors.

The audio-visual teaching theory holds that the active use of educational media and the full play of the functions of the audio-visual senses can realize the optimal educational activities. The construction of digital teaching resources in higher vocational colleges is unavoidable, and it should be combined with the characteristics of X-professional to develop a variety of sensory stimulation resources such as video, animation, and audio. Concrete abstract content to enhance students' interest in learning. At the same time, the construction of digital teaching resources in higher vocational colleges should consider the diversified perspectives of users, and provide users with a variety of retrieval methods. For example, retrieval users can retrieve resources from different perspectives such as majors, industries, and jobs.

In the process of teaching design, teachers can build an online subject learning platform for students based on the teaching content of the subject and combine digital information technology. In this way, in the process of teaching, some students have learned the key knowledge of the course through the online system. In this way, the teacher's teaching

progress can be shortened very well, that is to say, in a very short time, the teaching content in the syllabus is completed, and the students' learning quality is also very good. The rest of the time can be given to students, allowing students to study and discuss freely.

### 3. CONCLUSIONS

Form a systematic engineering training center with digital construction as the core, covering machinery, electrical and electronic, computer and management as a whole, so as to transform the engineering training center from "investment type" to "benefit type", and make teaching change from "instruction type" to The transformation of "research-oriented" enables students to change from "hands-on" to "brain-driven", realizing the organic combination of teaching, scientific research and production, mutual promotion and common development, which is the only way to run the engineering training center well.

### 4. ACKNOWLEDGEMENT

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# Research On the Application Research of Digital Media Technology - Taking Digital Film and Television as an Example

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**Abstract:** With the rapid nonlinear evolution of computer hardware and software, digital media technology is widely used in various fields, especially in the digital film and television industry. Science and art are presenting a more captivating scene, and the digital media profession has emerged. It is natural for her to be at the forefront of the collaboration between science and art. Due to the rapid development of digital media technology, digital survival urgently requires research that keeps pace with the times. Taking digital film and television as an example, we focus on the application research of digital media technology to digital film and television, to promote the development of digital survival.

**Keywords:** Digital Media Technology, Application Research, Digital Film, Television

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## 1. INTRODUCTION

The application of digital media technology has brought new vitality to the development of film and television advertising business. Strengthening relevant research plays an important role in enhancing the scientific and artistic value of film and television advertising works. In this context, this article focuses on exploring the application of digital media technology in film and television advertising. What is "digital media technology"? Digital media technology is based on computer technology, with network communication technology as the main means of communication. It comprehensively processes media information such as images and graphics, sound, and text, and achieves the recording, representation, processing, transmission, storage, and management of digital media. It is a software and hardware technology that concretizes and manages abstract information.

This is a new technology discipline based on optical and electronic media as the basic languages and is a new technology that relies on digital and networked technologies to transform and innovate media from form to content, based on digital technology as the core. Firstly, the promotion of film and television works often requires the use of audiovisual and emotional trailers. The dissemination of these trailers is the application of digital media technology. As digital media is stored in binary form, this method allows information to be easily copied, quickly spread, and reused. If a trailer is remade, it will inevitably squeeze investment funds. However, using digital media technology for secondary tailoring saves this trouble. Not only can the most exciting links in the film and television work be selected to form a trailer for promotional purposes, but multiple trailers can also be produced repeatedly.

Virtual worlds, 3D images, and videos have broken the limitations of textual and graphic expression in advertising creation, providing more choice space for film and television advertising creation. In film and television advertising, digital multimedia technology has endowed various aspects of China's film and television advertising with a certain degree of richness and diversity. The combination of digital media technology and film and television works can be traced back

to the stage of "digital imaging". From the 1960s to the 1970s, computer image researchers began to study the implementation technology of digital imaging. The rapid development of communication technologies such as computer internet and satellites, as well as the advancement of digital cameras, digital editors, digital projectors, and animation image compression technology, has also driven the rapid development of the digital film and television field. The influence of digital technology is gradually breaking through the film and television production process and extending to the distribution and screening process.

At the same time, there are various forms of digital media dissemination, and people can easily access various types of information through channels such as the internet, QQ, Weibo, TV, radio, etc. As a result, a group of online porters emerged. They processed the information they received on platforms such as Bilibili, increasing the popularity of their film and television works. This dissemination is also a form of publicity generated with the help of digital media technology. For example, Cai Xukun, the star who was spoofed by netizens in the Bili Bili platform ghost livestock district, has gained great attention in a short time. Compared with other flat form advertisements, film and television advertisements have outstanding advantages. They can rely on their unique forms and techniques of expression in the shortest possible time to stimulate people's curiosity about the product, and fully showcase the characteristics of the merchant and the product.

## 2. THE PROPOSED METHODOLOGY

### 2.1 The Application of Digital Media Technology in Film and Television Advertising

In traditional postproduction of film and television advertisements, the artistic effect of film and television advertisements is usually unsatisfactory, and a large amount of time, manpower, and material resources must be spent on modifying and improving the works. The entire process of film and television production can be achieved through digital media technology. Film and television works have

transformed from being edited, stored, and projected in the physical form of film in the past to being shot and edited using digital cameras, disseminated through advanced communication methods such as satellites or the internet, and presented to the audience through digital projectors. Digital media technology is widely used in film and television production, resulting in corresponding digital movies.

Digital movies include animated movies and stunt movies. All the big scenes that cannot be achieved can be displayed through digital media technology, giving people unexpected effects. In the experience of film and television works, digital media technology, combined with advanced communication technology, can fully enable the simultaneous release of digital films and television. This not only allows others to be more involved, but also significantly reduces the cost of certain films and television. For example, the Spring Festival Gala and the live broadcast of global Chinese shared moments, as well as sports events such as the Olympics, are all manifestations of digital media technology. In addition, today's developed virtual reality technology can more attract viewers to fully immerse themselves in the plot, experience the characters and atmosphere in film and television works, and break through the limitations of watching flat film and television works.

For example, the half hour dream dizziness created by the movie 'The Last Night of Earth' is only felt using three-dimensional glasses. Through the application of this technology, artistic processing and reprocessing of film and television materials can be carried out, effectively improving the artistic effect of the work. While improving the efficiency of work creation, it also innovates the content and form of film and television advertisements, improving the integrity and expressiveness of the work. Digital film and television are a new field that has emerged based on digital media technology, mainly including digital movies, digital television, online media videos, and mobile TV. Digital media technology has been widely applied in the creation, production, and dissemination of film and television, not only allowing people to feel the entertainment fun and convenience brought by digital media technology, but also promoting the production and dissemination of film and television works, mainly reflected in the production, distribution, and screening stages of film and television. Due to the development of digital media technology, the protection of digital film and television has become somewhat outdated. However, in recent years, it has finally been possible to use digital media technology for anti-infringement activities, such as adding additional copyright information to film and television works. This information does not affect the screening of the video, but can be recorded by storage media, effectively solving the problem of rampant infringement.

## **2.2 The Application of Digital Media Technology in Digital Film and Television Communication**

With the rapid development and integration of computer technology and digital communication technology, traditional broadcasting, television, and movies are rapidly moving towards digital audio, digital video, and digital movies. At the same time, they have formed a new generation of digital communication media along with the increasingly popular computer animation and virtual reality. The digital media technology major has also emerged. Firstly, this is an emerging profession with a broad focus on technology, supplemented by art, and a combination of technology and art.

To study this major, we need to master the basic theories and methods in the field of information and communication, possess professional knowledge and skills in digital media production, transmission, and processing, and have a certain level of artistic cultivation. We can comprehensively apply the knowledge and skills we have learned to analyze and solve practical problems.

Digital media technology exhibits three stages of development characteristics due to the size of digital media broadband, as well as the degree of network integration and popularity. The development of the digital media industry has also gone through three stages. In the first stage of the development of the digital media industry, digital media technology is mainly used in the field of broadcasting and television, spreading content to users through digital television. Currently, the acceptance of information is still relatively passive, mainly in the form of single release, the consideration is the need for digital media dissemination and management. In the first stage of the development of the digital media industry, the application of digital media technology has expanded from the field of broadcasting and television to various industries, such as scientific research institutions, universities, advertising industry, etc., mainly through digital media technology to build communication platforms and enhance their own image. This stage needs to be developed based on industry characteristics to effectively solve the problems of publishing and management.

The widespread application of digital media technology in film creation is closely related to the digital, interesting, and interactive characteristics of digital media technology itself. Firstly, digital media technology has distinct advantages, breaking the basic form of using models to store information in the past, making information flow and storage more convenient. Secondly, digital media technology embodies a strong sense of interest, with rich, vivid, and interesting content. Digital media technology provides good technical support for film creation, allowing film creation ideas to be expressed in various ways.

The training direction of digital media technology major is mainly to train units such as digital film production companies, television stations, advertising companies, television channels and column packaging departments, interactive entertainment companies. Animation companies and other film and television production institutions with high theoretical level of film and television production and digital art literacy, be able to master the most advanced digital film and television technology, and be familiar with the production process of digital film and television production, digital media technology is a double-edged sword in the dissemination process of digital film and television: on the one hand, it can carry out more effective dissemination, attract huge attention to digital film and television, and also increase the expressive power of digital films. But on the other hand, it is also a powerful means of deception, which can deceive the audience into watching a film and television work they do not want to watch, and sometimes it can also promote online violence against celebrities.

From the perspective of the connection between technological characteristics and virtual reality technology, digital media technology includes virtual reality technology. Its new development trend is to enhance reality through virtual reality, reproduce physical information in the real world through simulation, and enable the audience to obtain sensory experiences beyond reality.

### 3. CONCLUSION

To sum up, digital media technology mainly includes digital video processing technology, digital sound processing technology, digital image processing technology, digital media information output and acquisition technology, digital media communication technology and information processing technology, digital media information retrieval and security technology and database technology, digital media information storage technology and computer graphics technology. The development and application of digital media technology have driven the rapid development of film and television animation, presenting new visual effects in both form and content. It reveals that there are still many areas to explore in the application of digital media technology in digital film and television. In addition, the application of these digital media technologies can provide reference for network regulations and further improve network regulations.

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# Internationalization Strategies in “Double High” Schools

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**Abstract:** Internationalization is an important content of higher vocational schools, and it is also an important content of "double high" construction. Under the background of "double high" construction, higher vocational schools should improve the international management system and mechanism from three aspects: perfecting the international management structure, establishing an international coordination operation mechanism, and strengthening the evaluation and management of international work. Promote the overall internationalization level with the internationalization of key majors, rely on school-enterprise cooperation to enhance international production capacity cooperation capabilities, and jointly build and share to expand the international cooperation circle of friends.

**Keywords:** Internationalization Strategies, Double High

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## 1. INTRODUCTION

With the in-depth advancement of the "Belt and Road" initiative, the internationalization of education will play an increasingly important role in serving my country to enter the center of the world stage and promoting the construction of a community of shared future for mankind. Vocational education is an important part of my country's education going to the world stage, highlighting the Chinese brand of vocational education, and an important force for the international development of my country's education. The "National Vocational Education Reform Implementation Plan" proposes to "build a Chinese vocational education standard system that covers most industries and is at the international advanced level." The internationalization of higher vocational education is an inevitable trend in the transformation of the global governance system. At present, the balance of international power is undergoing profound changes, and the influence of emerging and developing countries continues to increase. As the world's second largest economy and the largest developing country, China plays an advocating, coordinating, and promoting role in the global governance system. the role of those.

UNESCO has emphasized in reports such as the "cultural diversity and intercultural dialogue report" that "everyone in the modern world needs to acquire intercultural competence" and recommends that countries strengthen the internationalization of education. "Improving the level of internationalization" is not only a specific task in the "Opinions", but at the same time, improving the level of internationalization can also promote the high-level completion of other tasks. In terms of personnel training, higher vocational colleges carry out internationalization in terms of management system, teaching staff, and professional courses, and continuously strengthen vocational education exchanges and cooperation with different countries. Talents with technical skills. In the context of the "Double High Program", accelerating the process of internationalization has become an inevitable choice for higher vocational colleges to realize open education.

Hubei vocational colleges are fully aware of the key role of team internationalization in the process of internationalization of colleges and universities and expand the internationalization of the teaching staff through regular

measures such as regularly sending key teachers to study and train abroad, visiting scholars, taking part in on-the-job training, or participating in international conferences. background. Some colleges also combine their own school-running characteristics to select teachers with international communication skills to carry out different types of technical training for overseas personnel, further improving teachers' international vision and professional comprehensive quality. Improve the internationalization work system and operating mechanism. According to the current direction of international development, continuously expand the functions of the school's international management department, transform from a single function to multiple functions, from conventional reception services for foreign affairs to the cultivation of international talents for serving, and from the introduction of resources to the introduction of resources Pay equal attention to the transformation of running an international school.

According to the international development process and project expansion, the school should continuously improve the working system and responsibilities of the international cooperation functional departments, formulate international development strategic plans, etc., refine the international project management methods, and establish a management system for international development. Finally, strengthen the construction of international management team. Participate in the "Belt and Road" construction and provide overseas employee training for Chinese-funded enterprises that "go global". The second is to run schools and go out. Encourage open universities to build overseas learning centers, establish several vocational education institutions abroad, and carry out overseas training. The third is to go global with standards.

## 2. THE PROPOSED METHODOLOGY

### 2.1 Improve the management system and mechanism to ensure the orderly development of international education

Develop internationally common professional standards and curriculum systems, launch a batch of high-quality professional standards, curriculum standards, and teaching resources with international influence, and build an international brand of Chinese vocational education. Fourth, teachers go out. Implement the "overseas training plan for



teaching innovation teams of vocational college teachers", and select professional leaders, high-skilled leaders, and talents in short supply for overseas training. Fifth, the results go out. Hold the China vocational education development achievement exhibition in the countries along the "Belt and Road" to show the good image of contemporary China. The country and Shaanxi Province have continuously made new strategic arrangements for the reform of higher vocational education, and successively issued the "decision on accelerating the development of modern vocational education", "China's Education Modernization 2035", "National Vocational Education Reform Implementation Plan", "Double High Plan" " A series of important policies and measures, such as the implementation plan for vocational education reform in Shaanxi Province, put forward newer and more specific requirements for the modernization and internationalization of education.

It not only provides unprecedented policy opportunities for the international development of higher vocational colleges in Shaanxi Province, but also brings strong economic support. With the support of relevant reform policies, the eight colleges and universities of the "Double High Program" will carry out internationalization construction, which is conducive to the establishment of an international brand of Shaanxi vocational education. According to the information query on the organization setting published on the official website of each college, less than a quarter of the 41 colleges and universities have independently set up special institutions to coordinate the international development of the school.

Because the foreign exchange business of vocational colleges is generally lower than that of undergraduate colleges in terms of quantity and quality, higher vocational colleges do not have independent specialized agencies, and mostly cooperate with school offices, basic course departments, academic affairs offices, and school-enterprise cooperation offices. Or the joint office of the personnel department. This not only shows that the number of full-time personnel responsible for internationalization work in most colleges is limited, but also reflects that the scope of international exchange work of colleges and universities is relatively limited, which to a certain extent restricts the room for improving the internationalization level of schools. The personnel department should closely focus on building an international team of teachers and cooperate with the international cooperation department to carry out management work such as appointment, entry, and training. Learn advanced educational concepts and educational models, enhance the ability of independent innovation, and carry out "localization" to build an effective platform to achieve the purpose of teacher training abroad (border).

The "Belt and Road" initiative has created a new pattern of my country's opening. Shaanxi is in the inland center, and its geographical location effect plays an important role in the initiative to connect Europe and Asia, connect the east and the west, and is also a regional center that promotes the comprehensive development of science and technology innovation, economy and trade in the central and western regions. Vocational colleges provide a good platform to go international. All colleges and universities should make full use of the advantages of the starting point of the "Belt and Road Initiative", constantly learn from advanced foreign experience, accelerate their international development process, and promote the organic integration with the economy, technology, culture, and society of countries along the "Belt and Road".

## 2.2 Double high strategy to enhance internationalization level.

There are two main evaluation indicators for the internationalization of the teaching staff structure: one is the proportion of foreign teachers in the total number of teachers in the school; proportion of the volume. Compared with undergraduate colleges, the proportion of teachers in Hubei higher vocational colleges is seriously insufficient in the proportion of internationalization, the structure of teachers cannot reach a certain proportion of internationalization, and there are relatively few teachers with international education background. The shortage of international teachers is due, on the one hand, to the fact that higher vocational schools are not attractive enough to high-level overseas talents, and on the other hand, it is mainly due to the high cost of hiring foreign teachers, and vocational schools spend relatively little on the introduction of foreign experts and overseas talents. limited.

Strengthen the assessment and management of international work and improve the assessment and evaluation system. Carrying out assessment and evaluation is an effective way to measure the degree of internationalization of higher vocational schools, and it is also an important means for schools to grasp the problems faced in the development of internationalization. The high-quality requirements of the "double high" construction on the internationalization level of schools require higher vocational schools to strengthen the evaluation management of international development. Through flexible and diverse evaluation methods, functional departments, secondary teaching units, and teachers, etc. conduct a comprehensive assessment and evaluation. Standardization construction is the breakthrough to guide the development of vocational education, and the internationalization and promotion of standardization construction has always been an important goal of higher vocational colleges, but it is also a weak link.

First, insufficient attention is paid to the current international certification system in the field of vocational education. For example, the "Sydney Agreement", which is highly recognized internationally, is an important part of the international mutual recognition system for engineering education and engineers. There are not many references to existing international education standards related to learning. Second, there are few channels for the international promotion of vocational education standards. With the launch of the "Double High Program", higher vocational colleges in Shaanxi Province must recognize their own opportunities and challenges and carry out construction in close combination with the specific task requirements put forward in the "opinions" for improving the level of internationalization. Combining the above analysis, his own work practice and the requirements of related documents, the author tries to propose the implementation path for higher vocational colleges to improve their internationalization level from three aspects: self-consolidation, excellent input, and strong output, to provide a "double high plan" for higher vocational colleges. Construction provides a useful reference.

It is not difficult to see from the data that a small number of "Double High Program" colleges and universities have realized the export of high-quality vocational education resources to foreign colleges and universities by developing professional standards and curriculum systems of international standards, but they have not yet formed a scale and brand, and the overall output capacity and level are also low. unbalanced. Except for Wuhan Vocational and Technical College, Wuhan Railway Vocational and Technical College, and Huanggang

Vocational and Technical College, which maintain a certain amount of stable output each year, the other "double high program" colleges are still in their infancy in terms of standard formulation and output. These all reflect that Hubei vocational education has not yet formed a regionalized, characteristic, and large-scale export brand, and the overall international service capability is still relatively weak, which is far behind the goals and requirements proposed by the "Double High Plan".

### 3. CONCLUSION

The "Double High Plan" was proposed under the background of China's economic growth from high-speed growth to high-quality development. As the type of education that is most closely related to economic society and production practice, vocational education should focus on the "Double High Plan" and other series. The goal of internationalization in the document is to seize the opportunity of high-quality development of higher vocational education in the new era, take root in China, look at the world, combine the introduction and output of standards, give full play to the important characteristics of the integration of vocational education, production and education, and rely on the school-enterprise co-construction. In the training base, a high-level "dual-teacher, dual-skilled and bilingual" teaching team will be arranged to provide on-site guidance and practice on the job, so as to improve the professional technical skills and professionalism of international students, and make them understand the production process and production process of Chinese enterprises. Master the production technology, comprehend production management and corporate culture, and lay a solid foundation for future service to the development of domestic industries.

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# Research on Higher Education Management Curriculum Based on Digital Twin Technology

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**Abstract:** The innovative mode of practical teaching is a key link in achieving the cultivation of innovative "intelligent" talents in engineering. However, the specific application of artificial intelligence technology in the construction of innovative practical teaching has always been a challenge for the academic and industry sectors. Based on the perspective of school enterprise cooperation, with digital twin technology as the core, assisted by various artificial intelligence technologies such as augmented reality and synchronous modeling curriculum management in higher education institutions is an academic field that has just begun systematic research in China, and it is also a very promising field. This article reviews some research achievements in this field in Europe and America in recent years, and explores the concept, scope, significance, function, managers of curriculum management, as well as management in curriculum reform. The aim is to provide some ideas and references for future in-depth research in this field in China.

**Keywords:** Higher Education, Management Curriculum, Digital Twin

## 1. INTRODUCTION

In the context of Industry 4.0, intelligent manufacturing and smart factories are developing rapidly in the manufacturing field. Manufacturing enterprises urgently need to cultivate innovative and intelligent talents. However, how to cultivate innovative talents suitable for the "smart needs" of manufacturing enterprises, especially engineering innovative intelligent talents, has always been an urgent issue for universities and enterprises to explore and consider. In April 2018, the Ministry of Education issued the "Education Informatization 2.0 Action Plan", which clearly stated that the rapid development of artificial intelligence technology has put forward new requirements for the form of school education, emphasizing the need for schools at all levels to carry out the construction of intelligent teaching environments and promote the application of artificial intelligence in campus construction, education, and teaching.

In particular, the sudden COVID-19 in 2020 has brought unprecedented challenges to online teaching in China, which is mainly manifested in the following aspects: the quality of online teaching is uneven, students' online learning effect is unsatisfactory, and students' independent learning ability is uneven. The backwardness of teachers' information literacy and technology has become an important bottleneck restricting online teaching reform. In real teaching, online teaching is mostly only used as a supplement to offline teaching and has not been promoted and applied to form a teaching norm, which makes online teaching unable to avoid falling into the dilemma of "shallow learning".

The definition of the scope of curriculum management in foreign countries is also generally the same. For example, American scholar Stark defines curriculum management as the responsibility and authority exercised to ensure successful curriculum development, coordination, implementation, support, evaluation, and improvement. Management discipline is a science that arises from practice and is formed by numerous scholars and entrepreneurs based on summarizing the objective laws of management work. After long-term development, it has formed a complete set of theories based on summarizing and summarizing a large amount of practical experience. Management is another art that lacks significant

formulas or theorems. Experience accumulation plays an important role in management activities, and creativity based on different management scenarios further demonstrates this.

Therefore, management discipline is closely linked with practice. It is not only the management of materials, but also affected by soft factors such as society, culture, religion, and people themselves. These characteristics make management discipline significantly different from other disciplines. Through Data modeling and artificial intelligence algorithms, it monitors the changes and development of physical objects in virtual models, and complex processing, analysis and prediction of multi-dimensional data based on artificial intelligence, reasonably and effectively plan, and predict teaching decisions and processes.

Digital twins are the models that form a certain process in the physical world and their digital mirroring processes and methods in the digital world. They are also known as digital twins and include five driving factors: sensors, data, integration, analysis, and actuators in the physical world, as well as continuously updated digital twin applications. Currently, a new technology - digital twins - has emerged that can effectively achieve intelligent interconnection and interaction integration between the physical and information worlds. Digital twin is a tool to manage complex information by Data and information visualization, which can provide real-time, efficient, and intelligent service solutions for individuals, organizations and even systems.

## 2. THE PROPOSED METHODOLOGY

### 2.1 Characteristics of Quality Training for Management Students in Universities Based on Digital Twin Technology

The core feature of digital twin technology is "reflecting reality with virtuality, controlling reality with virtuality, and practicality with virtuality". From the perspective of curriculum organization and organization, higher education curriculum can be divided into three levels: the development of individual courses, the development of training plans, and the curriculum development based on colleges or schools. Course management mainly refers to the management of the

latter two levels. At these three levels, there are usually three groups of people responsible for curriculum management: teachers, managers, and leaders. For teachers, there are also differences in management responsibilities and powers at three levels. For example, some teachers assume the role of the person in charge of formulating training plans. So, teachers can usually be further divided into two categories, namely ordinary teachers and teachers who bear the main responsibility for formulating training plans (usually the department head or dean in charge of teaching work).

Most students majoring in management tend to pursue more specific management positions, therefore, possessing interdisciplinary literacy, especially basic knowledge in engineering, is essential for management students. Moreover, the combination of specific theory and practice, such as truthful research, case teaching, and other basic knowledge in other disciplines, can make it easier for students to integrate into situations and find the integration point of theory and practice, which can promote the teaching of management courses. With the support of digital twin technology, schools and enterprises collaborate to cultivate innovative and intelligent talents. Firstly, through visual platforms for practical operation drills, internal information such as equipment construction, machine design, production and processing processes, and mechanical control logic can be quickly transmitted to teachers and students more intuitively, improving the efficiency and quality of practical teaching.

Then, the school enterprise will further integrate, with university teachers, students, and enterprise professionals jointly participating in digital twin modeling and 3D design, interactive product design, and intelligent decision-making services. Finally, in response to the actual operational aspects of enterprise product design, production management, and process control, digital modeling, virtual simulation, online management, precise control, and decision support are used to optimize enterprise production performance, reduce system development costs, and improve production and operational efficiency. The fusion analysis technology of virtual and real teaching space refers to the construction of a corresponding twin teaching space in cyberspace through big data modeling, simulation, visualization, and other technologies, so as to realize the digitalization and virtualization of all elements of the teaching space, real-time and visualization of the whole state of the teaching space, that is, to build a digital virtual teaching space. There is a popular view in the academic community that the best course management is to manage as little as possible. And it is believed that the responsibility for course management should be fully delegated to professors, allowing them to develop courses or training plans based on their academic beliefs and interests.

## 2.2 The Application of Digital Twin Technology in Management Teaching in Universities

However, the practice of higher education both domestically and internationally has proven that such training programs are difficult to achieve success in achieving both the educational goals of the school and the goals of students themselves. The discipline of management is largely about managing people. With the process of world economic integration and the expansion of management scope, new requirements have been put forward for students in interpersonal communication and the reception of foreign cultures. In future life and work, these future managers will also have more opportunities for cross-cultural communication. The discipline of management knows

no borders, but management behavior is linked to cultural background and social atmosphere. During these internship tasks, students can immerse themselves in the design and management tasks of smart factories and workshops and participate in modeling and design based on digital twins under the guidance of teachers.

Different from the traditional design and management, students do not need to spend a lot of time on the processing of physical geometric modeling of factories and workshops, nor do they need to worry about their modeling, analysis and design not keeping up with the actual design rhythm of intelligent engineering, which is out of line with the actual product design, thus leading to the actual design problem of "two skins" of student modeling and factory design analysis. High speed data transmission part uses high bandwidth optical fiber technology real time transmission of limb and other data to teachers. At the same time, the data support layer breaks through traditional auditory and visual perception, utilizing technologies such as sensors and the Internet of Things to integrate multiple perceptual information. The digital twin podium is a real-time dynamic mapping of the real online teaching space; therefore, the real-time collection, transmission, and dynamic update of data are of great significance to it. Compared with Chinese universities, foreign universities have some differences in curriculum management due to different systems. Scholars abroad believe that the leadership of regular curriculum development and implementation can and should be undertaken by teachers, while the coordination work should be undertaken by management personnel.

Although these managers may have been, or still retain, the status of teachers. The evaluation work should be jointly undertaken by teachers and management personnel. The implementation of interactive teaching can take various methods such as student preview, classroom teacher questioning, classroom discussion, simulation games, and student speeches. This efficient classroom teaching method is not only beneficial for students to master the classroom teaching content, but also to stimulate their interest in learning, cultivate their self-learning ability, practical ability, problem-analysis, and problem-solving ability, develop their strengths, form their knowledge and skills, and cultivate their indomitable, united, collaborative, and innovative will and quality.

The "Double Studio" adheres to the educational philosophy of "emphasizing both knowledge and skills, and synchronizing theory and practice" in the process of talent cultivation. It is a collaborative education platform jointly built by both on campus training studios and off campus practice studios in the context of school enterprise cooperation and industry education integration. The task of teaching in the "double studio" is no longer solely undertaken by teachers. Engineers and professionals in enterprises will provide professional guidance to students and help them improve their information literacy and professional skills in practical teaching. The implementation of complex functions of the digital twin podium largely relies on an integrated computing platform, while the real-time integration of the online immersive teaching system.

## 3. CONCLUSION

Through school enterprise cooperation, digital twin technology enables college teachers and students and enterprise professionals to seamlessly connect their innovative ideas in real time, further deepen the digital transformation of

colleges and enterprises, and realize the innovative digital drive of colleges and enterprises based on the integration of virtual and real. Digital twin technology achieves deep intelligent integration of intelligent manufacturing in multiple fields through the integration of schools and enterprises, allowing practical teaching in universities and production practices in enterprises to shine with wisdom and innovation. At present, research in this field in China has just started. With the deepening of reform, research in this field will become increasingly urgent. Here, the author has only made some sporadic discussions in this field based on some recent literature, hoping to play a role in attracting valuable insights.

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# Learning and Development in Children's Games

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**Abstract:** Games are the main element of the unique culture of preschool children, building their spiritual world. Games are an indispensable privilege for preschool children, and deconstructing games is about deconstructing the cultural and spiritual world of preschool children. The play and learning of preschool children are both derived from their inherent needs for survival and development, which reflects the essential identity of the two. However, the current teaching mode of autonomous games for kindergarten children still cannot be effectively carried out, due to safety hazards, insufficient cognitive level of children, and difficulties in integrating knowledge into games in "autonomous game" teaching. Based on this, the author will combine their own teaching experience to discuss the problems and implementation strategies of autonomous learning in children's games.

**Keywords:** Learning and Development, Children's Games

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## 1. INTRODUCTION

On November 15, 2012, our people love life and look forward to better education, more stable jobs, more satisfactory income, more reliable social security, higher levels of medical and health services, more comfortable living conditions, and a more beautiful environment. We hope that children can grow better, work better, and live better. The people's longing for a better life is our goal of struggle. Observation is a prerequisite for teachers to provide appropriate education for young children and an important way for teachers' professional development.

Only when teachers fully observe children and understand their development level, behavior characteristics, interest tendency and Learning styles, can they develop an independent game acquisition program that conforms to children's characteristics, and make timely adjustments according to children's performance in the game process, to ensure the suitability and effectiveness of game activities. For young children, game-based teaching is the best teaching method among all teaching methods. When playing games with other young children, they can exercise various abilities in the game. If team collaboration game teaching is carried out, young children can learn organizational skills and communication skills through games. If teaching through personal storytelling games is carried out, young children can exercise their oral expression skills through these games. Each of these games has its own advantages, and the breadth and depth of cultivating students' abilities vary greatly.

Gamification courses are based on games, using the fun of games to guide young children to master knowledge and improve their own abilities through games. Therefore, games play a crucial role in teaching young children. Not only that, but Preschool teacher should also pay attention to letting children sum up experience through games, and have their own experience cognition for similar knowledge, which is more important than games themselves. Games run through people's lives but have different meanings and functions in different periods. For preschool children, games are not only a form of existence, but also a fundamental form of learning. For primary and secondary school students, games are an integral part of their extracurricular life beyond learning activities, or occasionally serve as an embellishment of learning activities.

For adults, games are a pastime or hobby outside of 8 hours of work. Teachers' views on children and games have also been

changed in the process of children's independent creation of game environments: teachers infiltrate educational intentions into a rich and organized environment, providing opportunities for children's exploration. Through various factors in the game environment, they transmit information, inspire, and guide children, and make games develop in the direction expected by education. At the same time, through the interaction between children and the environment, teachers can provide timely feedback on the needs of children's games and supplement and improve them. The current teaching mode of independent play for kindergarten children is still unable to be effectively implemented, mainly due to three obstacles: firstly, due to safety concerns.

Autonomous play for young children is a teaching mode that is carried out without the comprehensive monitoring of kindergarten teachers. In this teaching mode, young children can make their own decisions about the games to be played, and then teachers only provide certain supervision. This teaching mode is quite dangerous due to the lack of close supervision from teachers,

## 2. THE PROPOSED METHODOLOGY

### 2.1 Games build the spiritual world of children.

For different teaching contents, teachers should adjust the game style appropriately to avoid the phenomenon of children's learning interest decreasing due to the single game form. They should capture the children's attention by shaping diverse and rich game content, so that children have unique memories of different knowledge content and ensure the efficient development of game activities. The diversity of game content can be considered from several aspects such as the format of the game, the selection of game venues, and the materials required for the game. Learning is how organisms adapt to their environment. Organisms must constantly modify their behavior to survive. Games also have the function of biological adaptation, which is a common learning method for preschool children and mammalian cubs.

Of course, the games of preschool children are not only related to those of mammalian cubs (such as life skill exercises), but also have essential differences in subjectivity and instinct. In the process of game organization, teachers often struggle with many problems, some of which arise from teachers often "directing" and directing children's games, preventing them from playing games freely and autonomously. In games that

emphasize autonomy, young children have the right to control and choose their own games. Teachers should base on observation, formulate the next step of the game plan based on children's performance, needs, and problems in the game, so that the development of the game can better meet the wishes and needs of children.

Allowing young children to plan games independently is a meaningful challenge for them. Integrating relevant knowledge into games is an extremely difficult task. Teachers need to consider students' own acceptance ability, controlling the difficulty of knowledge points, and how to effectively integrate relevant knowledge into games to create a scientific and reasonable game plan. These are the thorny issues that exist in children's autonomous games. Only by effectively solving these problems can kindergarten teachers ensure the smooth and efficient development of autonomous game teaching. Teachers should let go appropriately, allowing young children to fully immerse themselves in the game, giving them opportunities to make mistakes, allowing them to understand their own problems, and giving them ample space for self-reflection and exploration. Teachers should first establish certain game rules on the premise of letting go, ensuring the safety of young children and not restricting their behavior. While cultivating young children's autonomy, it is also important to recognize the importance of rules.

## 2.2 Moderate participation in children's autonomous games based on observation.

In addition, it is necessary to provide corresponding game materials for young children to establish a foundation for the smooth development of the game. But game materials are not easy to have too many, and young children are generally more interested in new things, which can distract their attention and hinder the progress of the game. Preschool children's learning is also rich and diverse. The play and learning of preschool children are often intertwined. From the perspective of learning content, the learning of motor skills, cognition, emotions, and behavioral norms are all inseparable from game activities. From the characteristics of the learning process of preschool children, after entering the preparatory stage, the children independently discuss and decide on the items to be prepared in the role-playing area, draw the required items, and then the team members assign tasks themselves and prepare them separately. Teachers have observed that open materials are more conducive to stimulating children's imagination and creativity, allowing them to replace things with objects and allowing games to continue more freely.

Therefore, a material area has been created in the class, with many semi-finished products and waste items, providing material support for children continued and in-depth play in the later stages. Children are naturally playful, and games are their unique way of life and learning. In carrying out independent games, we need to provide children with a free and enjoyable playing space, breaking the limitations of time, space, environment, and materials, returning freedom to children without interference, allowing them to forget to return, learn and innovate, and explore independently. Respect young children's independent choice of games, play freely, discover problems, research problems, and solve problems through games. Our teachers should intervene in a timely manner, provide correct game guidance to young children when necessary, and not deprive them of the right to explore freely, to achieve deep learning and exploration of young children in the game. Lay the foundation for future learning and life.

Therefore, the teaching evaluation system is not only a simple summary of teaching results, but also lies in the performance of young children during the game process and the optimization and improvement of teacher teaching activities. Teachers should observe the emotional changes of young children in a timely manner through games, to have an objective evaluation of the entire game content. Games are an inherently motivational behavior. Voluntary and purposeless play is an important feature of preschool children. Preschool children's games have no pressure and are not controlled or constrained by external goals and utilitarian outcomes. Even the rules in the game are inherent, voluntarily accepted and consciously followed by preschool children, and are an internal self-restraint. Autonomous games have greater randomness, increasing opportunities for children to interact freely, and increasing conflicts between children. Teachers need to encourage and guide children to solve problems independently, so that children know that I can do it.

But teachers should also actively observe and intervene in the difficult problems that children encounter in autonomous games, and timely help them solve problems to ensure that game activities can proceed smoothly. When formulating teaching plans, teachers need to make a reasonable plan so that they can carry out "autonomous game" teaching in a regular and planned manner. Teachers need to plan teaching objectives for each teaching stage, such as the game of "eagle catching chicken", which requires young children to learn the ability to cooperate and communicate with others. The game of "stacking sand" develops children's imagination. In this way, the teacher's teaching at each stage has a purpose.

## 3. CONCLUSION

Teachers should scientifically organize children's games with a sense of freedom, ensuring that they are neither completely laissez faire free games nor "game children" directed by teachers. Games and the learning and development of preschool children are not simply linear connections. The concept that games can allow children to develop freely and naturally has been challenged by a series of research data. The benefits of games for children's learning and development cannot be separated from a prepared environment and high-quality educational guidance, which is also true for games. Not only are kindergarten teachers required to actively change traditional teaching methods and keep up with the trend of the times, but they should also pay attention to game content that is more in line with practical life, so that young children can fully understand the inevitable connection between games, life, and learning, so that at the same time as the healthy development of young children's physical and mental health, it can also lay the foundation for future personality development.

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# Research on Physical Education Teaching in Universities and Quality Education for College Students

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**Abstract:** Humanistic quality education, as an important measure for colleges and universities in China to cultivate outstanding social talents, is also one of the important contents of physical education reform in colleges and universities in the new era. Integrating humanistic quality education into current physical education teaching in universities not only conforms to the development requirements of modern society and the times, but also further promotes the need for quality education. It plays an important role in improving the comprehensive literacy of college students and cultivating more outstanding social talents. To enhance the physical fitness of college students, improve their comprehensive quality, and promote their healthy development, building an excellent team of physical education teachers is the key, establishing a good teacher-student relationship is the guarantee, and improving the quality of college students through physical education teaching is an important way.

**Keywords:** Physical Education, Quality Education, College Students

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## 1. INTRODUCTION

The humanistic quality education in physical education teaching in universities mainly refers to the education of aesthetic, life, and values for college students. In addition, attention should be paid to expanding students' knowledge in various aspects such as literature, art, science, history, etc. The purpose is to help college students learn how to behave and ultimately promote them to transform the knowledge they have learned into the quality of life. At present, there are still problems in the cultivation of humanistic qualities among college students in physical education in China, such as insufficient infiltration of humanistic spirit in teaching, failure to fully play the role of students as the main body, imperfect teaching evaluation mechanisms, and relatively insufficient humanistic qualities of teachers. Emphasis is placed on the cultivation of students' sports interests and hobbies.

Physical education teachers should attach great importance to cultivating students' interests and make them run through the entire teaching activity. When guiding and organizing students to carry out sports activities, on the one hand, we should fully tap the students' inherent potential and fun in sports, enrich the lively teaching content with good teaching forms, adopt flexible teaching methods, cultivate students' interests, and transform the stable interest cultivation into the habit of self-exercise, so that students can learn something and benefit for life. On the other hand, while strengthening the teaching of basic physical education knowledge, teachers' pay attention to broaden students' horizons, teach students to use knowledge and skills and scientific fitness methods, and enhance students' ability to exercise themselves.

With the development of society, sports are no longer a means, but will become an important component of the content and purpose of modern life. Therefore, the goal of physical education teaching in universities is not only to inherit the "educational" goal, but also to develop and update it. Adopting different educational methods to conduct moral education for students. Adopting scientific and reasonable educational methods during class is not only a reflection of a teacher's teaching ability, but also an effective way to conduct moral education for students. An experienced physical education teacher should combine students' behavior and willpower, physical and psychological activities in the

curriculum, and utilize various aspects of the class to educate students.

The goal of physical education in colleges and universities is to cultivate outstanding social talents with all-round development of physical and mental qualities, such as morality, intelligence, physique, beauty, and labor. Therefore, when conducting physical education teaching, teachers should pay attention to adjusting the teaching plan according to the actual situation of students and reasonably setting the teaching content. Firstly, teachers should effectively link the course content with students' actual lives, and add some sports content related to entertainment, life, and leisure. For example, when teaching long-distance running courses, teachers can first tell students some small stories about hard work and willpower before organizing running practice. Teachers should be good at regulating students' emotional changes, so that they maintain a happy and positive mood, this is of great significance for emotional communication between teachers and students.

## 2. THE PROPOSED METHODOLOGY

### 2.1 Quality Education for College Students in Physical Education Teaching in Universities

A person with good emotions is easy to approach and conducive to heartfelt conversation. Teachers only need to have more contact with students, understand them, care for them, move people with emotions, pour in "mother" like love to care for them, and treat them sincerely. Only then can students understand and trust teachers. For a long time, under the influence of traditional concepts, physical education teaching in universities has overly emphasized biological indicators such as movement specifications, exercise load, and exercise density. The teaching process tends to be militarized and formalized, neglecting or suppressing the cultivation and development of college students' personalities. Therefore, physical education teaching in universities should be scientifically designed from the perspective of students actively and actively learning and exercising, stimulating learning wisdom and abilities.

From emphasizing the logical connection of textbook content as the focus, to arranging teaching links and steps based on college students' understanding of the laws and characteristics of sports textbook content. Set an example, be strict with oneself, play a leading role, and conduct ideological and moral education. As a teacher, one should pay attention to civilized speech and neat clothing. During the teaching process, one should play a leading role in demonstrating and clarifying the key points of various sports projects, demonstrating standards, and setting a good example for students. At the same time, it should be consistent in appearance and actions. Teaching evaluation is a crucial link that affects the effectiveness of classroom teaching. Teachers should not excessively pursue the quantification and absolute objectivity of evaluation when evaluating students, but should consider individual differences such as students' interests, hobbies, and physical fitness. Emphasis should be placed on the humanistic and scientific nature of evaluation methods to promote their development and motivation functions.

Therefore, in physical education teaching, teachers should pay attention to the humanistic nature of teaching evaluation and promote the transformation of teaching evaluation from a single type to a composite type. Maintain a coordinated teacher-student relationship. Most physical education classes are conducted outdoors, with students having more contact with teachers. During the teaching process, teachers not only need to speak, but also practice. If teachers can practice and actively participate in students' exercises, activities, and games, it will invisibly shorten the distance between teachers and students. Especially after a few indoor theoretical classes, once students enter the physical education classroom, they will feel extremely excited and eager to try like a bird out of a cage. Transforming from the rigid and standardized structure of physical education courses in the past to a more diverse, flexible, effective, and personalized direction.

Starting from the teaching objectives, content, and conditions of each class, we need to create a "structural model" of physical education classes with different characteristics that reflects the effectiveness of quality education. The basic structure still exists, but it is no longer the same as a thousand lessons and one person. It is more necessary to "reform" and "micro liven up" to promote rich teaching content, diverse forms, and easy acceptance by students. A physical education teacher should cultivate and exercise their abilities. And for students, what aspects should we cultivate and exercise from. For students, quality education is not only the cultivation of ideological and moral qualities, but also includes the cultivation of cultural and scientific qualities, physical and psychological qualities, and labor quality. As a teacher, one should strive to cultivate students in these aspects based on the normal implementation of classroom routines.

## **2.2 Reforming and innovating physical education teaching is an important way to implement quality education for college students**

Teachers are the organizers and guides of the entire teaching activity, and the level of teachers' comprehensive literacy directly affects the teaching effectiveness of students. In the current physical education teaching in universities in China, there are still common problems such as relatively low educational qualifications of teachers, lack of exploration ability, and insufficient knowledge reserves, which to some extent seriously restrict the healthy development of physical education in universities. Therefore, in the new era of physical

education teaching in universities, schools should pay attention to taking various measures to strengthen the construction of the teaching staff and improve the humanistic literacy of teachers. Specifically, the improvement of teachers' humanistic quality includes multiple aspects, first, the improvement of cultural quality. Provide patriotic education to students. Teach students the purpose and significance of physical education teaching in combination with teaching and improve their correct understanding of physical exercise. Briefly introduce China's splendid sports culture, the touching stories of Chinese athletes fighting bravely for the honor of the motherland, and inspire students' patriotism, national confidence, and pride.

Educate students to cherish beautiful times, follow natural laws, actively and scientifically exercise, and maintain their bodies, to have a strong physique and make more contributions to the modernization construction of the motherland in the future. Moving from a simple "one size fits all" approach to encouraging students to develop and fully develop at their existing levels, combining the general development, common development, special development, and differential development of college students. While focusing on the overall teaching objectives, fully develop students' creativity and creatively solve individual learning problems for college students. A student with a good spirit of teamwork will be able to excel both on campus and after graduation.

For physical education classes, teamwork means cooperation between teachers and students, as well as cooperation between classmates. Only a collective with strong cooperation, unity, and cohesion can excellently complete teaching tasks and achieve good teaching results. In the process of team cooperation, students should always be taught to care about the collective, love the collective and be proud of the collective. It is also in this process that students can be taught to respect and understand others, and they can also be good at getting along with others. Let students understand that collective honor represents personal honor, and only in a good cooperative group can excellent results be achieved. Teachers should also pay attention to improving their own innovation awareness and ability. The physical education teaching in universities cannot be separated from innovation. In practical teaching, only by possessing innovative awareness and thinking can teachers more accurately control classroom teaching, excavate the connotation of "humanistic spirit" in teaching, and better educate students and deepen their understanding of the humanistic spirit of sports. Finally, the cultivation of teachers' personal strength is particularly important in physical education teaching.

With the socialization and lifelong development of physical education, college students' physical education is the key link of lifelong physical education, which puts forward the requirement for college students to carry out willpower education, to cultivate their ability to exercise independently. College physical education teachers require students to master the four links of self-study, self-practice, self-adjustment, and self-control, allowing them to repeatedly try to succeed or fail in a reasonable way of exercise, to cultivate students' excellent qualities of perseverance, courage to accept challenges, and overcoming difficulties. Students not only engage in physical exercise.

### 3. CONCLUSION

With the development of China's politics and economy, the demand for talent from the country and enterprises is becoming increasingly high. Middle school students are the hope for China's future development, and quality education for middle school students is becoming increasingly crucial. Only students with all-round development can adapt to the needs of the country's development. Middle school physical education is the key content of middle school education. Only by better implementing physical education teaching can we promote the comprehensive development of college students' quality in physical education teaching; Starting from educational evaluation, it is not only important to consider the absolute level of performance achieved by college students in physical education classes, but also to pay attention to the progress and effort of college students in physical education learning. Try to implement positive feedback regulation in the process of physical education teaching in universities through various functions of assessment and evaluation and achieve the goals of physical education teaching in universities.

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# An Empirical Study on the Impact of the China–United States trade war on Enterprise R& D Investment

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**Abstract:** The China–United States trade war that began in 2018 has pressed the pause button, but it has a profound impact on China's economic development, not only making China's exports face considerable pressure, but also to a certain extent promoting export enterprises to the United States to avoid tariff barriers by transferring investment, especially labour-intensive export enterprises are more vulnerable. In addition to direct investment in the United States, they can also transfer investment to alternative countries that are not affected by trade wars. As well as the problems from 2015 to 2017 exposed by the China–United States trade war, we propose corresponding solutions in combination with the financial strategy matrix. Through the analysis of the case, this paper explores the feasibility of the financial strategy matrix in optimizing the financial strategy of enterprises and puts forward some suggestions for ZTE's financial strategy adjustment in the extreme environment of the China–United States trade war.

**Keywords:** Empirical Study, China–United States, trade war, R& D Investment

## 1. INTRODUCTION

Since the establishment of diplomatic relations and the restoration of normal trade between China and the United States in 1979, trade between China and the United States has developed rapidly. By 2017, the bilateral trade volume had increased by more than 230 times, with a total trade volume of 633.97 billion US dollars, of which China's exports to the United States reached 505.6 billion US dollars. At the same time, bilateral trade frictions have also been ongoing, but they can be effectively controlled, belonging to normal local small frictions. In 2018, trade frictions between China and the United States intensified, negotiations between the two sides failed, and a comprehensive trade war officially broke out in July 2018. It was not until the first phase of the trade agreement was reached in December 2019 that the pause button was pressed.

The United States has gone through three rounds of tariff increases on Chinese products, from 50 billion to 200 billion and then to 300 billion A, which took effect. The original plan was to impose tariffs on 550 billion products, but the 300 billion B list was later cancelled due to an agreement between the two parties. Enterprise resources refer to all the elements that a company has control over and can benefit the company. Enterprise resource analysis aims to analyze the company's own resource situation, understand the advantages and disadvantages of the company's resources, and how these advantages and disadvantages affect future financial strategies. The effective allocation of resources is the guarantee for the company to enhance its own value. The interaction between resource allocation and performance evaluation management can generate more value than individual.

Although China's GDP has ranked second in the world, its GDP is not completely equal to a country's Comprehensive National Power. China's per capita GDP is far lower than that of the United States. Meanwhile, despite the large scale of China's manufacturing industry, its technological level cannot be compared to that of the United States. Although the economic growth mode is constantly improving, it is still in a development mode of high energy consumption and high pollution. In recent years, China has vigorously promoted industrial upgrading, proposed the Industrial 4.0 Plan and

"Made in China 2025", and tried to develop the technology industry and enhance its Hard power.

The United States is concerned that China's industrial upgrading and transformation of its economic development model will lead to intensified competition between China and itself, affecting the United States' leading position in the high-tech field and ultimately its own hegemonic position. Although the China–United States trade war has pressed the pause button, the high tariffs imposed by the United States on Chinese products have not been lifted. Even if Trump, the leader of the trade war, steps down, the Biden government will not easily lift the tariffs already imposed. The impact of the trade war on China's economy seems to have a long-term trend. From this point of view, the China–United States trade war has a far-reaching impact. In terms of economy, it will undoubtedly bring losses to both sides. For China, which has a huge trade surplus, it will also bring obvious economic losses.

## 2. THE PROPOSED METHODOLOGY

### 2.1 The Impact of Trade Friction on Enterprise Innovation

A trade war will not only affect China's exports, but also its investment. Especially if long-term expectations are formed about the impact of a trade war, enterprises that mainly rely on exports to the United States will accelerate the pace of investment transfer. The growth rate of the company's operating revenue has significantly decreased, but it grew rapidly in 2019. In 2019, the company continued to deepen cooperation in the upstream and downstream supply chain of the industry, accurately grasped market development, and actively expanded overseas.

The market share and demand for domestic storage chips have also significantly increased. Although the outbreak of the China–United States trade war has made the company's overseas business environment worse in the short term, it has also made the company's domestic market development environment better. The state has vigorously supported the semiconductor industry, and the pace of domestic semiconductor substitution in China has accelerated. The trade war unilaterally initiated by the United States in the short term has some negative impacts on the development of

China's semiconductor enterprises, but the long-term trend is improving.

The impact of the China–United States trade war on interest rates is not so direct, but the United States has prepared for a long-term trade war. The continuation of this war will lead to the tightening of domestic liquidity, which will raise interest rates. The main reasons are: on the one hand, the main means of the current trade war between China and the United States is to impose tariffs, and the United States has also imposed restrictions on China's investment in the United States, reducing China's capital account deficit. On the other hand, the China–United States trade war reduced China's current account surplus, thus further reducing the capital account deficit.

The average cumulative abnormal return in the [-10, 20] interval is 23.7%, the t value is 11.89, and it is significantly greater than 0 under the confidence condition of 1%. The China–United States trade war has a significant positive impact on the stock prices of China's semiconductor enterprises. The average cumulative abnormal return rate in the [-10,60] interval is 2.8%, with a t-value of 0.72, so it is not significant. The average cumulative abnormal return in the [-10,90] interval is 13.6%, the t value is 2.59%, and it is significantly greater than 0 when the confidence condition is 5%. The China–United States trade war has a significant positive impact on the stock prices of China's semiconductor enterprises. The results of investment transfer are mainly reflected in two aspects. One is that the growth rate of China's absorption of foreign direct investment has declined, and the other is that those countries benefiting from the China–United States trade war have significantly increased the speed of absorbing FDI. According to data released by the Ministry of Commerce of China, China's actual utilization of foreign investment in 2018 was \$138.3 billion, while in 2019, the actual utilization of foreign investment decreased slightly to \$138.14 billion.

## 2.2 Analysis of the Regulatory Effect of Industry Competition Degree

The Latin American region, which is close to the United States, saw a positive increase in foreign investment absorption in 2019, with FDI inflows transitioning from a negative growth rate of 6% in 2018 to a growth rate of 16%. Southeast Asia, which is close to China, achieved even more astonishing growth in 2019, with FDI inflows increasing from 3% in 2018 to 19%. South Asia's FDI inflows also increased from 4% in 2018 to 10%, while India achieved a high-speed growth of 21%. Since the China–United States trade war, the central bank has adopted a relatively loose policy to maintain liquidity in response to the trade war, forming a good bond market in terms of fundamentals and liquidity.

If the interest rate difference between China and the United States remains at a low level for a long time or falls further, China will face the risk of capital outflow. Faced with the escalation of trade frictions, the business risk of enterprises has increased, the production efficiency has declined, the liquidation risk of equity pledge has increased, and the Liquidity risk of enterprises has increased, which will further lead to the occurrence of credit default and affect the credit bond market in China. In the credit bond market, as trade frictions continue to escalate, China's economic growth rate is gradually decreasing, and corporate risks are significantly increasing. In terms of sales expenses, the sales expenses in 2018 increased by 6.54% compared to 2017, and in 2019, the sales expenses were 125 million yuan, a year-on-year increase

of 62%. In 2019, the company's operating revenue also increased significantly, and the company's business operations achieved good results.

Good market effect. There are two main reasons for the increase of sales expenses: first, the increase of labor remuneration; second, the outbreak of the China–United States trade war reduced the company's income from its business in the United States. The company needs to invest more funds to expand its sales channels and stabilize its market share. Enterprises can also develop their core capabilities through external learning and absorption of knowledge from other enterprises. External resources of enterprises can also be classified as industry resources, industry resources, market resources, and external environmental resources. These types of resources are not owned or controlled by the enterprise itself but can be obtained and used by the enterprise through business strategies or network of relationships, analyzing ZTE's external resources from the perspective of forming core capabilities, mainly analyzing the various external factors that ZTE can obtain to help form its core products.

From the above analysis, it can be seen that the outbreak of a trade war not only dealt a blow to China's exports to the United States, but also caused operational pressure and uncertainty for enterprises in China, including domestic export enterprises, especially foreign-funded enterprises, resulting in a certain degree of investment transfer effect. Next, further theoretical analysis will be conducted on the reasons for investment transfer. The reasons for foreign direct investment by multinational corporations are multifaceted, and bypassing trade barriers is one of the important reasons for foreign direct investment. Mondale, the father of the euro, first proposed that there is an alternative between international trade and international investment. Obstacles to capital flow will lead to trade, and barriers to trade will also lead to capital flows, that is, foreign direct investment.

Financial strategy is mainly related to the financial nature of the strategy, mainly considering the use and management of funds. Enterprise executives can choose appropriate financial strategies from different perspectives after analyzing the financial situation of the enterprise, such as the most common financial strategy selection based on the product lifecycle.

## 3. CONCLUSION

Starting from the background of the trade war, this paper analyzes the high-tech enterprises that have received wide attention based on the financial strategy matrix analysis tool. Its innovation points are reflected in two aspects: first, based on the financial strategy selection idea of value creation and growth rate, this paper uses the financial strategy matrix to analyze the effect of financial strategy adjustment and the remaining shortcomings of enterprises in the new environment, in response to the China–United States trade war, The company can increase personnel allocation in overseas business, create efficient business development and expansion teams, expand sales channels, and ensure the continuous growth of overseas business in the future, as well as prepare for other domestic and international uncertain factors.

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# A Study on the Physical and Mental Health of Preschool Children

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**Abstract:** The psychological development of preschool children has its age characteristics. This article mainly explores the developmental characteristics of language, attention, memory, and imagination in preschool children, as well as the cultivation strategies for their language ability, attention, memory, and imagination. However, many problems have also arisen in the development of preschool physical education. This article briefly analyzes the problems in preschool physical education and proposes corresponding solutions to these problems, aiming to provide reference opinions for preschool physical education teaching.

**Keywords:** Mental Health, Physical Health, Preschool Children

## 1. INTRODUCTION

Preschool education is of great significance for the physical and mental health development of children, especially preschool physical education. However, so far, there are still many problems in preschool physical education, including a lack of strong preschool physical education teachers, complete equipment and spacious activity venues, and a lack of standardized management of preschool physical education. In addition, people's understanding of preschool physical education is insufficient, including kindergarten teachers and parents, it is difficult for preschool physical education to play its important role. Therefore, it is necessary to strengthen the awareness of preschool physical education among teachers and parents and strengthen the implementation of preschool physical education to ensure that children can grow up physically and mentally healthy. In terms of social environment, another American psychologist, Ben Finbony, proposed a social ecological model for the development of children's mental health.

He regards the overall environment related to children's mental health development as an ecological system and divides this system into four subsystems: micro, cross, indirect, and macro. The micro system includes families and childcare institutions, and the cross system is the cross environment of several micro systems, while the environment of the government, the country, and the whole society is included in the latter two subsystems. Benfinboni actively advocates for extensive investigation and research on children's psychological development and behavioral problems in the social ecological environment. The research on preschool children's health education has rich connotations and involves many aspects, such as health curriculum, physical education, care and safety work, and the mental health of children and teachers.

The symposium workshop provides opportunities for representatives to share and exchange ideas on topics of interest or in-depth research with others. The conference has set up 5 sub venues, each with two experts providing guidance and comments, and 6-10 representatives giving special speeches. This can also trigger practical thinking and guidance on children's problem-solving behaviors, and apply the knowledge to practical early childhood teaching, which can have a positive effect on promoting the physical and mental health development of young children. Especially for Preschool teacher, promoting the healthy growth of children is the primary goal and the responsibility. Therefore, it is very

important to guide children to establish a healthy and happy psychological state and guide them to make correct behavior in the process of getting along with children or carrying out one-day activities.

However, how to guide requires starting from observing the behavior of young children, that is, observing their behavior through various activities and determining whether their behavior is problematic. Teachers should control the difficulty of activities at a level suitable for children, allowing them to experience the joy of success while also experiencing certain challenges. Clarify the purpose and requirements of the activity. The clearer the task, the stronger the desire to complete the task, and the more focused and persistent the attention. So, in activities, it is important to let children know why they should do this and stimulate their desire to do it well. Active attention must overcome various disturbances from the external environment to achieve the effect of attention, so it is necessary to create a quiet and simple environment and overcome the factors that affect attention. For example, if a child sees other children performing better than themselves during an activity and immediately resists or damages others' works or property, and this situation occurs more frequently, it can be preliminarily judged that the child's behavior.

## 2. THE PROPOSED METHODOLOGY

### 2.1 The existence of physical and mental health in preschool children

To correct this behavior of young children, teachers should first discover this problem in a timely manner, and then deal with the jealousy behavior of young children in a timely manner. That is, they should carefully listen to the psychological feelings of young children, and simply and clearly tell them that each child has their own strengths, and should not always compare their own strengths to others' weaknesses, nor should they always compare their own weaknesses to others' strengths, when comparing the same strengths with others who are better than oneself, one should see if one has greater room for improvement and learn from children who are better than oneself.

There are two main forms of kindergartens in China, namely private kindergartens, and public kindergartens. Public kindergartens have relatively standardized and scientific management of physical education, but the number of public kindergartens is relatively small. Although there are many private kindergartens, there is a lack of standardized management of preschool physical education, which is not

conducive to the development of preschool physical education. In addition, some kindergarten managers do not attach importance to the standardized management of physical education. However, the focus is on external publicity activities, without implementing sports activities. Only in large-scale activities can there be relevant sports activities and competitions, which hinders the development of preschool physical education. Many parents attach more importance to the cultivation of children's artistic talents, English abilities, and intelligence, while neglecting the importance of physical education. Kindergartens, to meet the needs of parents, spending part of physical education time on cultivating artistic skills, English proficiency, and intelligence greatly shortens the time spent on physical activities, leading to the inability of young children to develop in a coordinated manner.

In the four cases of aggressive behavior, two of the parents have divorced, while the other's parents often argue and use their children as a source of anger, freely beating and scolding. Another example is that because this young child is the only boy in the entire family and is particularly favored, his grandparents are often beaten by this young child but remain silent. The case of refusing to attend kindergarten is that due to the indifferent attitude of the head teacher, parents believe that their children are useless, so they always treat their children with a rough attitude. In the special session of "health education curriculum and teaching and management", Professor Ye Pingzhi from the School of Education of Guangzhou University talked about the construction of curriculum in the field of health education, including how to choose content, set goals, organize activities, implement evaluation and other issues.

The content shared by the representatives also had different focuses, some thinking about the construction of health education courses from a theoretical perspective, and some introducing their own kindergarten's practical exploration of health education. In the special session of "infant sports", Leng Xiaogang, associate professor at the School of Sports and Health of East China Normal University, elaborated on how to effectively implement kindergarten sports teaching activities. It is easy for preschool children to develop visual memory and improve their memory ability. Developing games and memorizing interests is a favorite activity for young children. Gorky once said that games are a way for young children to understand the world. Indeed, games can consolidate and enrich young children's knowledge, and can develop their language and intelligence.

## 2.2 Practical Pathways to Solve the Physical and Mental Health of Preschool Children

Teachers integrate knowledge into games, which can enable young children to learn and remember in the game; Try to encourage preschool children to participate in various sensory activities - visual, auditory, olfactory, taste, and tactile - to achieve the best attempted memory effect. Action demonstration, accurate memory of some knowledge, using action demonstration, preschool children will accurately understand and remember. At the same time, it is necessary for teachers to actively research scientific and reasonable game activities that can enrich children's world, achieve good physical education teaching results, and promote their physical and mental health growth. Supervision and management of sports equipment in kindergartens should be implemented to ensure that sports equipment meets quality

requirements, is environmentally friendly and standardized. In terms of equipment selection, Kindergartens can be uniformly purchased by the government, and these sports equipment should be regularly inspected and maintained to ensure that children can safely use them. Explicit or implicit "maternal deprivation" is an important feature of the family environment in such cases.

In four cases, one child had just turned one when their mother ran away from home, and their father, after being stopped from driving a "disabled car", wandered around and threw the child to the neighbor's 80-year-old lady. A young child's mother is a mentally ill person. In the fourth year after the child was born, the father ran away and the child was raised by the grandfather. There is one case where parents get divorced. There is another example where although parents are healthy, they have very little time to spend with their children and have conversations, which is an implicit "maternal love deprivation". Dr. Xu Fangzhong, Director of the Clinical Psychology Department of Zhejiang Mental Health Center, introduced his research findings on the incidence and influencing factors of psychological and behavioral problems in preschool children in Zhejiang Province, providing many insights from a medical perspective. The representatives respectively introduced their theoretical and practical research on early childhood mental health education, including the impact of mother's work and family conflicts on young children's psychology, how to intervene in games for socially withdrawn children, how to understand young children's psychology through their paintings, and so on.

The conference also held a special session on "research on the cultivation of teachers' mental health and care ability", focusing on the psychological needs and professional growth of teachers. Unintentional imagination dominates, while intentional imagination is developing. Reconstructing imagination occupies the main position, and creating imagination begins to develop; Imagination is greatly exaggerated and gradually moves towards logical alignment with reality. It is particularly important to cultivate interpersonal skills in the information society, especially among children. The first step in cultivating children's interpersonal skills is teamwork. In sports activities, the completion of some activities requires unity and cooperation with others, such as relay races. Children understand during the relay process that no matter how hard a person tries, no matter how fast they run, they cannot achieve success without collaborating with other members of the team. Therefore, I understand the importance of teamwork. Through these collaborative sports activities, I gradually cultivate young children's interpersonal skills.

In addition, during the process of participating in sports activities, it is inevitable to communicate with others. Therefore, preschool physical education provides children with a platform for communication and exchange, allowing them to not only gain joy during sports activities, but also cultivate their communication and communication abilities, which is conducive to cultivating children's psychological qualities and is beneficial for their social and emotional development.

## 3. CONCLUSION

Preschool physical education cultivates children's abilities in all aspects, including interpersonal communication ability, cognitive ability, and intellectual development, so that children can adapt to society. Therefore, preschool education



is of great significance to children's healthy development. Therefore, parents, preschool teacher and education departments must attach importance to the development of preschool physical education, not only to vigorously cultivate physical education teachers, but We should also strengthen the purchase of equipment and the construction of Sports venue, and finally strengthen the standardized management of kindergarten physical education. The accumulation of knowledge and experience is the foundation for the development of children's imagination. Teachers should guide children to have more exposure to and observation of things, deepen their understanding of things, enrich their knowledge, increase their visual reserves, and prepare for the improvement of their imagination.

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# Research on Uniformity Analysis and Evaluation Standard of Paving Asphalt Mixture Based on Big Data Technology

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**Abstract:** The regional geographical environment where the Mongolians live is extremely unique, so they have gradually formed a distinct national aesthetic consciousness in their long-term life, which is clearly reflected in Mongolian leather products. The Mongolian people have long mastered the method of using sewing technology to make various leather products, and their technical level has been continuously improved, gradually becoming a unique craft of the Mongolian people. Most of the Mongolian leather products are made from various animal fur in nature. The method of applying Mongolian traditional leather technology to the modern leather design with national cultural characteristics in Inner Mongolia has been studied, and the design method developed by the author's design practice and theory research to verify, and to design creative tourist souvenirs with Mongolian cultural characteristics that conform to Mongolian traditional aesthetics and modern aesthetic standards.

**Keywords:** Uniformity Analysis, Evaluation Standard, Paving Asphalt Mixture, Big Data Technology

## 1. INTRODUCTION

The development of the national economy and society is closely related to the transportation industry, which provides a fast and convenient road for economic development. After the reform and opening, my country has vigorously developed the transportation industry, and the results have been remarkable. As of December 2019, the total mileage of expressways in my country exceeded 140,000 kilometers, approaching 150,000 kilometers. During the "13th Five-Year Plan" period, expressways will continue to be built. It is estimated that by the first year of the "14th Five-Year Plan", the total mileage of expressways will reach 169,000 kilometers. In the traditional asphalt mixture design system, the research steps of pavement performance are cumbersome, and a series of complex and expensive indoor tests are required. With the continuous requirements of high quality and high efficiency in engineering construction and the development of modern technology, the traditional asphalt mixture design method has been unable to meet the design needs.

Since the launch of the SHRP program in the United States, more and more researchers have realized that the microstructure inside the asphalt mixture has an important influence on its road performance and have obtained a new asphalt mixture by means of experiments and classical mechanics methods. The engine of the asphalt paver is equipped with a supercharger. The flywheel end of the engine drives four axial variable pumps for walking and distributor through the transfer case, and the output of the fan end drives the vibrating beam variable pump. To prevent system overload and overheating, hydraulic pumps are equipped with pressure cut-off devices. There are also two hydraulic pumps for the scraper conveyor, a fixed displacement gear pump to control the screed lift cylinder and hopper retraction cylinder, and another variable displacement hydraulic pump to drive the screed to oscillate.

The computer's processing of images is essentially to obtain reasonable results through data operations. To make the

operation process simple, the images are converted into digital forms in the computer without affecting the processing effect, and the maximum possible. Make sure the image is not distorted. This requires two processing methods of sampling and quantization. Converting a continuous image  $f$  into a form that can be processed by computer language is to convert  $f$  into a digital form. Digitizing the coordinate  $x$  and coordinate  $y$  is called sampling, and digitizing the secondary value  $f$  is called quantization. Such area division Not only is it beneficial to simplify the calculation of parameters used to characterize the homogeneity of the internal structure of asphalt mixture specimens, but also lay a foundation for improving the identification accuracy of the internal structure uniformity of asphalt mixture specimens.

According to the density and area ratio of coarse aggregate, asphalt mortar and voids in each small area of the digital image, calculate the uniformity evaluation parameters of each area in the single-layer section of each component, and use it as the basic parameter for uniformity evaluation. The evaluation parameters that characterize the internal structure uniformity of asphalt mixture are obtained. By comparing HIMDI with the existing recognition methods for the internal structure uniformity of asphalt mixture, it is found that HIMDI can not only effectively evaluate the internal structure uniformity of asphalt mixture. Under the structural parameters and operating parameters of the distributor, the uniformity of asphalt mixture paving may be affected. On the one hand, it is the macroscopic performance of the uniformity of the mixture paving, and on the other hand, it is the movement of the asphalt mixture during the spreading of the screw distributor. Microscopic manifestation of characteristic parameters.

## 2. THE PROPOSED METHODOLOGY

### 2.1 Uniformity Analysis of Paving Asphalt Mixture Based on Image Recognition

Use CFX post software is used to study the velocity distribution and time-average velocity distribution of the

auger distributor sports field, and to perform dynamic analysis of the asphalt mixture paving sports field under different screw diameters, different screw pitch structural parameters and different speed paving operation parameters. The standard deviation is the arithmetic square of the variance, which can reflect the degree of dispersion of a set of data, the coefficient of variation can eliminate the influence of the measurement scale and dimension and is used to reflect the degree of dispersion of the data. The calculation method of the coefficient of variation is the ratio of the standard deviation to the average. In the binarized image of paving asphalt mixture, according to the calculation formula of variation coefficient, this paper calculates the quadrilateral static moment dispersion coefficient CVGI of the  $i$ -th aggregate in the digital image and the ideal distribution of the corresponding archive and based on this to characterize the degree of dispersion of the aggregate, also known as the uniformity index. The basic idea of the design theory is to measure the characteristic values such as the void and pore volume of the main skeleton mineral material, and then make the asphalt mortar contain mineral powder and asphalt mortar the total amount of the mixture with fine aggregate and the design void volume of the mixture is equal to the void volume of the main skeleton, and finally determines the optimal asphalt dosage of the asphalt mixture.

The advantage of this design method is to ensure the embedding ability of the main aggregate, and at the same time make the asphalt mortar fully fill the gap space of the main skeleton. During the paving operation of the auger distributor, the screw diameter of the auger distributor affects the paving uniformity and paving efficiency of the asphalt mixture. To analyze the paving effect under different screw diameters, the auger distributor of a certain type of paver is used as a model, and different screw diameters are used as objects to study the velocity distribution and turbulent kinetic energy distribution of asphalt mixture in the motion field of different screw diameter structure parameters Impact. According to the design plan, a representative group was selected from 27 kinds of simulation tests for analysis, in which the amount of asphalt mixture at the entrance was 115%, the rotational speed was 60r/min, the screw pitch was 280mm, and the screw diameters were 480mm, 420mm and 360mm respectively. .

Through the analysis of the correlation between the particle size of the aggregate and the structural parameters of the mixture, it is determined that the coarse aggregate has a greater influence on the segregation of different types of asphalt mixture, and the weight coefficient of each grade of the coarse aggregate is calculated, and finally the calculation method of uniformity index of paving asphalt mixture based on digital image. By analyzing the calculation results of 300 images of AC-13, AC-20 and AC-25 asphalt mixtures, it is found that the obtained results are consistent with the actual observation results. Therefore, the volume parameters of the asphalt mixture and the parameters obtained from the Marshall test become the main parameters to characterize the Marshall design method. The volume parameters of the mixture in this design method include W, VFA and VMA. The essence of these parameters is the macroscopic performance of the content and spatial distribution of each component in the internal structure of the mixture. The parameters obtained through the Marshall test include stability (MS) and flow value (FL), which reflect the mechanical properties of the mixture.

## 2.2 Research on Evaluation Index of Paving Asphalt Mixture Uniformity Based on Digital Image

Use CFX. Post software is used to study the velocity distribution and time-average velocity distribution of the auger distributor sports field, and to perform dynamic analysis of the asphalt mixture paving sports field under different screw diameters, different screw pitch structural parameters and different speed paving operation parameters. The standard deviation is the arithmetic square of the variance, which can reflect the degree of dispersion of a set of data; the coefficient of variation can eliminate the influence of the measurement scale and dimension and is used to reflect the degree of dispersion of the data. The calculation method of the coefficient of variation is the ratio of the standard deviation to the average. In the binarized image of paving asphalt mixture, according to the calculation formula of variation coefficient, this paper calculates the quadrilateral static moment dispersion coefficient Cvi of the  $i$ -th aggregate in the digital image and the ideal distribution of the corresponding archive and based on this to characterize the degree of dispersion of the aggregate, also known as the uniformity index. The basic idea of the design theory is to measure the characteristic values such as the void and pore volume of the main skeleton mineral material, and then make the asphalt mortar contain mineral powder and asphalt mortar the total amount of the mixture with fine aggregate and the design void volume of the mixture is equal to the void volume of the main skeleton, and finally determines the optimal asphalt dosage of the asphalt mixture.

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parameters obtained through the Marshall test include stability (MS) and flow value (FL), which reflect the mechanical properties of the mixture.

### 3. CONCLUSION

Based on digital image processing technology, the image of paving asphalt mixture is analyzed and studied and based on the algorithm of four-side static moment of paving asphalt mixture image, the stepwise weighted four-side static moment dispersion coefficient is proposed as the evaluation index of asphalt mixture uniformity and given. The calculation method of the dispersion coefficient  $C_v$  is proposed, and the significance of the influence of the gradation type and the forming method on the calculation accuracy of the overall calculation of the void ratio of the mixture specimen under the standard compaction work condition is analyzed by using the single-variable multi-factor analysis of variance method. The analysis shows that the two factors have a significant impact on the calculation accuracy of the overall void ratio of the mixture specimen, and the impact of the gradation type is more significant than that of the forming method.

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# Adaptive Evaluation Algorithm for Matching Degree of Art Product Design Elements Based on Big Data

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**Abstract:** With the wide application of digital and intelligent production methods in the manufacturing industry, it is of great significance to guide enterprises to attach importance to and give full play to the value of manufacturing big data to innovate product process design. This paper aims to meet the application requirements of deep integration of enterprise data and business and proposes an application method of art product process adaptive design based on manufacturing big data mining, which is used to solve the problem of insufficient utilization of manufacturing data in enterprises. These artistic ceramic product designs, which contain the crystallization of human wisdom, have important reference and reference significance for our modern product design, especially the characteristics of ceramic materials, artistic ceramic elements, and their unique product semantics, providing new ideas for modern product design.

**Keywords:** Adaptive evaluation, matching degree, art product, big data, design elements

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## 1. INTRODUCTION

Emerging information technologies such as big data and cloud computing have sprung up rapidly and combined with modern industrial technology, resulting in many new production and manufacturing modes, such as intelligent manufacturing, digital twins, etc. Data driven has become an effective way and important means to solve complex problems. With the widespread application of CNC machine tools, sensors, data collectors, and other equipment components, manufacturing enterprises have accumulated a large amount of manufacturing data in the production process. These manufacturing data show typical big data characteristics, and the association rules and manufacturing knowledge behind the data have yet to be discovered. Data mining is needed to effectively guide the iteration and optimization design of product process, thus improving the adaptability of product process design to the manufacturing environment.

From the unearthed cultural relics, we can see thousands of years of pottery and porcelain, from simple living utensils to decorative porcelain, all of which reflect people's wisdom. In modern design life, ceramic elements and materials are applied in the design of household utensils, household appliances, modern digital products, modern bathroom products, and modern daily products. In summary, in modern product design, ceramics endow products with new and richer connotations due to their perfect physical properties in terms of structure, shape, color, and surface decoration. Today, with the ideology of environmental protection, nature, sustainability, and original ecology, ceramic materials will be widely used in modern society due to their unique properties.

Art and design majors have the characteristics of large amount of professional data and complex query and analysis, which makes big data become very important in art and design majors. The arrival of the big data era not only promotes the development of education, but also increases the demand of the society for students majoring in art and design. Moreover, art and design majors are characterized by strong Intersectionality and difficulty in finding. The application of big data in art and design majors can effectively improve the design ability and information processing ability of art majors. In the actual application process, students can use big data as

an effective tool to continuously improve their learning ability, to gradually meet the needs of social development.

Conduct quality testing on the produced products and generate product testing data. The process of mining manufacturing data is to explore the relationship and laws between product quality and process parameters by analyzing and processing manufacturing data. Newly discovered knowledge can be standardized and structured stored using knowledge base technology, assisting in design optimization decision-making, improving product design, and achieving "backward design" of product processes. At present, the product process design method based on experiment and simulation is relatively mature in the application of manufacturing enterprises, but the "backward design" driven by manufacturing big data is insufficient. It is urgent to solve the problems of poor adaptation of product design to the manufacturing system environment, lagging product iteration and version update, etc.

## 2. THE PROPOSED METHODOLOGY

### 2.1 Matching degree of artistic product design elements and feature matching

From the unearthed cultural relics, we can see thousands of years of pottery and porcelain, from simple living utensils to decorative porcelain, all of which reflect people's wisdom. In modern design life, ceramic elements and materials are applied in the design of household utensils, household appliances, modern digital products, modern bathroom products, and modern daily products. In summary, in modern product design, ceramics endow products with new and richer connotations due to their perfect physical properties in terms of structure, shape, color, and surface decoration. Today, with the ideology of environmental protection, nature, sustainability, and original ecology, ceramic materials will be widely used in modern society due to their unique properties.

The characteristics of big data mainly include: (1) huge amount of data; (2) The types of data are diverse and involve a wide range of aspects, which are related to many aspects of society and have strong data processing capabilities; (3) The data needs to be effectively classified and organized. If the

data is too large, the effectiveness of the information is not strong enough, and it needs to be processed in a timely manner to obtain effective data information. (4) The application of big data requires high timeliness, and too old data and information cannot meet the needs of users. In advanced manufacturing systems, with the increase of sensor types, the amount of information generated is increasing, and the form of data expression is more complex, such as time sequence data generated when mechanical sensors and speed sensors are working, image data generated when visual sensors capture images, and data generated during the operation of product data management system (PDM).

The remarkable characteristics of manufacturing big data are diversity, complexity, and uncertainty. The unified expression of manufacturing big data is the key and difficult point to solve the problem of data fusion. Ceramic materials are deeply loved by the surface industry because of their advantages such as good gloss, high hardness, no rust and discoloration, and stable chemical performance. Ceramic watches give people a pure white feeling. Their case and strap have good rust resistance, high heat resistance, high hardness, no fading not easy to wear and tear, with minimal damage to the skin. For designers, studying the application of ceramics in product design can not only help them better understand materials, but also broaden their thinking and transform and deconstruct materials and design. In short, the addition of ceramic elements in modern product design allows modern product design to continuously radiate the atmosphere of the times and new vitality, and better serve life.

Students majoring in art and design can learn in a large open online classroom through big data technology in the actual learning process. Moreover, students can also independently arrange the time and place of learning. This learning mode not only effectively enhances the learning interest of art and design students, but also promotes the continuous improvement of their learning quality. Cultivate the improvement of students' self-learning ability in art and design majors.

## 2.2 Adaptive Evaluation Algorithm for Matching Degree of Elements in Art Product Design

For example, with the support of actual big data, students can timely and dynamically appreciate the works of others, see the works of peers or masters, improve their art appreciation ability, broaden their thinking, and broaden their horizons. Big data for art and design majors can improve the learning and communication between students and other colleges and enhance students' communication and learning ability. In the data-driven product process adaptive design pattern, the volume and quality of data play a crucial role. Data quality includes the accuracy, completeness, consistency, and validity of data. Among them, accuracy refers to the degree to which the data conforms to the physical world, completeness refers to the proportion of valid values in the data, consistency refers to the degree to which the data meets specified constraints, and validity represents the value density of the data.

In traditional decorative patterns, plant decorative patterns are often used by people and often endowed with auspicious meanings. Among them, peonies are known as representatives of nobility and elegance, and lotus flowers are also regarded as symbols of integrity. In the product design of "Modern Baofeng Liquor Ware Design - Clear Fragrance Type", the advantages of ceramics and the changes in glaze color after firing are utilized to decorate the wine utensils with deformed

lotus decorative patterns. The Baofeng Liquor Clear Fragrance Type wine utensils are explained from the aspects of shape, glaze color, and pattern. With the support of big data, it can realize the exchange and communication between higher vocational colleges and higher vocational colleges, and between higher vocational colleges and undergraduate colleges, effectively avoid the differences between different colleges, promote the promotion of advanced art design education concepts among schools, improve the quality of education, and help colleges to establish high-quality and high-quality professional teaching. In the environment of big data, colleges and departments can better guide and explore art and design talents.

The application of big data technology in colleges and departments can also effectively provide a better platform for communication and learning for teachers and students. The various data collected during the manufacturing process usually have certain correlations, such as the voltage and current during the welding process, the rotational speed and cutting speed of the machine tool spindle, etc. This correlation can cause dimensional redundancy and increase unnecessary calculations, making data dimensionality reduction particularly important. Data dimensionality reduction refers to preserving appropriate feature data from high-dimensional data spaces and eliminating redundant data to reduce data dimensions. The reduced dimension data can not only retain the original information, but also avoid the Curse of dimensionality. Ceramic products have now become a necessity in our daily life. With the improvement of its manufacturing technology and the integration of Elements of art, ceramic product design has risen to the level of art and become a work of art.

With the improvement of people's material and cultural living standards, modern consumption is no longer just satisfied with the demand for price and use, but more to meet people's spiritual and cultural life. With the support of big data, we can better protect the legitimate rights and interests of authors and works, avoid plagiarism as much as possible, and help protect intellectual property rights. At this stage, the relevant legal protection of art and design in China is not perfect, and still needs further protection. The application of big data can enable relevant departments to fully understand the authors, works and other relevant content, and ensure the legitimate rights and interests of designers.

## 3. CONCLUSION

It can also improve the self-learning ability of students majoring in art and design, promote their ability to collect and identify information, and enable them to continuously meet the needs of the job market, achieving the sustained and healthy development of students majoring in art and design. Manufacturing big data contains rich knowledge and models, which can guide product design decisions and support the realization of product process adaptive design in different manufacturing environments. It is suggested to further promote the combination of big data and emerging technologies such as the fifth generation mobile communication technology, increase investment in research and development of big data platform and algorithm design platform, and stimulate greater integration of manufacturing Big data and product process design. It helps to expand design ideas and explore design methods that are more suitable for the integration of modern product design and ceramic elements, thus laying the foundation for us to design products that are more suitable for modern life.

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# The Determination of Possession in Property Law and the Crime of Embezzlement in Criminal Law

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**Abstract:** Possession is the starting point of property rights. In pure possession without any legal factors, it encompasses all the most fundamental characteristics of property law: willpower, dominance, and exclusivity. Although the property law replaces the factual requirement of possession with a rational design of rights and becomes the core of domination, the important role of possession in the property law has not been lost as a result. The possession system of property law reflects the protection of citizens' interests and plays a very important role in maintaining social stability and peace. In the handling of affairs, it is necessary to reasonably control personal behavior and facilitate substantive control of things.

**Keywords:** Possession, Property Law, Embezzlement, Criminal Law

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## 1. INTRODUCTION

After the promulgation of the Property Law, the systems of possession and bona fide acquisition in Chapter 9 of the Civil Law have become more closely and complex in connection with the practices of possession, recovery of stolen goods, and confiscation of criminal tools in the Criminal Law. This article aims to explore the intersection and conflict between criminal and civil issues. The role of the possession system in the property law is mainly reflected in the auxiliary aspect of status. Modern property law has shifted from property ownership to the direction of property utilization, to make modern property law more reasonable in its content and structure and highlight its normative role, it is necessary to redefine the ownership system and the crime of embezzlement in property law, which poses a challenge to property rights doctrine.

Actively understand the connotation of the possession system in the property law and the crime of embezzlement. The identification of the possession system in the property law is the main standard for measuring the crime of embezzlement and theft, and judgments can be made based on the heart element and body element as the two elements of possession. At that time, the specific form of behavior dominated by human will was the possession of things, and human will be completely combined with possession. In other words, in the era of pre legal relations, de facto control and management of things was the only way to achieve the will of things.

The complete combination of the two, on the one hand, manifests as the complete dependence of the will control of things on the possession controlled by the behavior of things, that is, where possession is, where will control is. On the other hand, it manifests as the complete reliance on possession to maintain the willpower of things, that is, if the actual control and management of things no longer exist, the willpower of things immediately becomes unreliable and difficult to sustain. Since the criminal law system focuses on the infringer rather than the possessor, and the prohibition of behavior rather than the confirmation of rights, the criminal law does not delve too deeply into the reasons for the possessor's possession of property. The criminal law focuses on the factual state of possession, and only asks whether or in what

serious way the infringer has infringed on others' de facto possession. It is precisely because the civil law system focuses on the possessor rather than the infringer, that the possessor must have a clear intention of possession.

Civil law places emphasis on the right to possess, rather than delving too deeply into the specific state of possession. There are no particularly strict requirements for the objective way of possession adopted by the possessor, but rather granting great freedom to maximize the use and profit rights of property. The crime of embezzlement is the illegal possession of property entrusted to oneself by others for illegal purposes, with a large amount not returned. From a subjective perspective, the crime of embezzlement is taking possession of oneself. The act of not returning the property that should have been monopolized by others, only for long-term use, is a general civil infringement, involving a large amount of money, and refusing to hand it over is illegal and has already constituted a crime. The conditions for the constitution of the crime of embezzlement: illegal possession is a prerequisite for the establishment of the crime of embezzlement, indicating that the act of privately occupying public or private property of others, the state, etc. due to personal needs is of a legal nature and is taken care of by others in a legal form.

In the era of pre legal power relations, the consciousness, dominance, and exclusivity of the possession of things can only be expressed in the context of abandoning the influence of rights in all statutory laws, which are objective and inevitable laws in the control of things that do not depend on human will. These laws constitute the basic conditions for the emergence and maintenance of the control of things. In the control of property rights over things,

## 2. THE PROPOSED METHODOLOGY

### 2.1 Understanding the Possession System of Property Law

As for stolen goods and contraband, since they also need to be restored through legal procedures, the possession of stolen goods and contraband is also protected by the criminal law, and the infringement of the possession of stolen goods and contraband is prohibited by the criminal law. From the perspective of form, it is inconceivable that the criminal law



protects the possession of stolen goods and contraband, but in essence, the intention expressed in the criminal law is that "the law does not allow others to arbitrarily infringe on the property illegally possessed by the perpetrator. To an objective extent, there are many reasons for the formation of legal facts, and their forms are also diverse. According to common sense of life, this act of escrow is entrusted.

When evaluating the behavior of holding someone else's forgotten property, it should be noted that the act of holding someone else's forgotten property is legal. If the other party has no demand for return, the perpetrator has the right to freely manage these properties within a specified time. In the control of the use value of the property, the object of the will is the property itself, not the rights on the property. The pursuit of will is the realization of the practical value of things, rather than the result of changes in rights. Therefore, under the domination of the use value of things, the rights of things are static and stable, and the significance of rights lies in protecting the process of domination, rather than directly participating in it. Therefore, under normal circumstances, rights do not play any role in the control of things. If the transferee obtains ownership of the immovable or movable property in accordance with the provisions of the preceding paragraph, the original owner has the right to request compensation from the person without the right to dispose of the property. If a party obtains other property rights in good faith, the provisions of the preceding two paragraphs shall apply.

Article 108 stipulates that: "After the bona fide transferee acquires the movable property, the original rights on the movable property shall be extinguished, except for those that the bona fide transferee knew or should have known of the rights at the time of acquisition." It has an important reference value for the issue of obtaining the ownership of stolen goods that may be involved. Theft refers to the act of illegally occupying public property, repeatedly using public or private property, and deceiving oneself in the process of using public property, taking possession of public and private property in a way that is not easily detected by others mainly reflects the subjective understanding of the perpetrator.

The main reason why theft constitutes a crime is that its behavior is intentional, knowingly causing harm to others and the country, and illegally occupying property, resulting in serious harmful consequences. To scientifically determine the crime of embezzlement and theft, it is necessary to analyze the problem from the perspective of the civil law system, to correctly distinguish between the crime of embezzlement and theft. The result of the use value of something controlled by others is mostly manifested as the acquisition of another 'new thing'. When the 'original object' as the dominant object far exceeds my actual ability to use it directly in space, the new object, as the result of domination, will also far exceed my own usage needs in quantity.

## 2.2 The Status of Possession in the Exclusivity of Property Right Control

So, unlike the original, the meaning of the new thing to oneself is no longer the value of use, but its value. From the above judicial interpretations, it is not difficult to find that judicial practice generally allows for the application of bona fide acquisition to buyers of stolen goods who are not at fault, unaware, or unaware, that is, the buyer obtains ownership, the offender redeems at the original price, the offender compensates for losses at the price, or returns the buyer after the case is closed. The main criteria for measuring theft and

embezzlement are the characteristics of embezzlement behavior, such as the strong embezzlement behavior exhibited by the embezzlement crime, and the perpetrator will legally become an individual illegal possession, because it is intentional, it constitutes a crime.

To determine the crimes of embezzlement and theft, it is necessary to promptly understand the legality and illegality of their actions. This is one of the main criteria for determining the crimes of embezzlement and theft. From the perspective of civil systems, it is considered whether this behavior has constituted intentional possession of the object, and whether the possession behavior is legal. The reason why the value of one thing reflects the other thing is possible is because of the opposition between the two things, and behind it is the opposition of the will between the owners of different things. The reason why the other reflection of the value of one thing is realized is that there is comparability between opposite things through the intermediary of value, and behind this comparability is the agreement of the opposing wills of different owners at a certain Equant.

Can this inappropriate effect be eliminated by explaining and limiting the goodwill acquisition in the judicial interpretation? From the perspective that bona fide acquisition is a common term in civil law and does not have a time limit for paid transactions between unauthorized dispositioners and property acquirers, it is not possible to provide a particularly personalized interpretation of "bona fide acquisition" in the 1996 judicial interpretation. From this, we can see the complexity between the pursuit in criminal law and the bona fide acquisition system in civil law: the debt relationship between the unauthorized disposer and the criminal property acquirer arises before the criminal act and cannot be applied to bona fide acquisition. Embezzlement is a keyword in the crime of embezzlement, which has already covered the connotation of the embezzlement system, and its behavior can be manifested as fraud, corruption, and seizure, it was also emphasized that the intentional possession behavior constituted using official convenience is also within the scope of national institutional regulations.

The methods for realizing the value control of things can be divided into two categories based on the transaction form, that is, the reasons for payment by others. One is the beneficial consideration, which means that the owner transfers the possession of the thing to others, so that others can use and benefit from the possession, and then realize the value control of the thing from the consideration payment of others. The second is the guarantee consideration, which means that the owner transfers the value of the future property to others conditionally, thereby obtaining credit payments from others and achieving the control of the value of the property.

## 3. CONCLUSION

In summary, this article takes institutional recognition as the research topic, mainly exploring the system of possession in the property law and the determination of the crime of embezzlement. Firstly, we understand the system of possession in the property law. Possession is a factual state in which people control things, and legal protection can prevent violent behavior by rights holders. Illegal possession is a prerequisite for the establishment of the crime of embezzlement. The act of privately occupying public and private property of others, the state, and other individuals due to personal needs has a legal nature, emphasizing the ownership of other people's property. The reason why possession occupies a fundamental position in property law

can be explained from two perspectives: socio-economic and social concepts. From a socio-economic perspective, the domination of the use value of the things recognized by possession, whether in the past, present, or future, has become an unshakable fundamental necessity for human survival and development, and constitutes the starting point of all socio-economic activities.

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# Electronic Commerce Assistant Teaching System Based on Artificial Intelligence Technology

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**Abstract:** This paper combines artificial intelligence technology with computer aided instruction technology, introduces the mathematical model of Ebbinghaus Forgetting curve, and uses software engineering methods to design and implement an e-commerce assisted instruction system based on artificial intelligence technology, to make up for the lack of current e-commerce teaching resources. This article provides an in-depth analysis of the development characteristics of e-commerce activity systems in the application of artificial intelligence technology and conducts research on the system development characteristics and strategy formulation of the ERP system design scheme.

**Keywords:** Electronic Commerce, Assistant Teaching, Artificial Intelligence Technology

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## 1. INTRODUCTION

With the rapid development of China's economy and the rapid popularization of the Internet, e-commerce has ushered in a spring of rapid development in China. At the same time, the enrollment scale of e-commerce majors in various colleges and universities has also rapidly expanded. However, e-commerce is an emerging industry, and there is a shortage of e-commerce talents, especially professional teachers. Therefore, the growth of teaching staff in e-commerce majors in vocational colleges is slow.

Due to the shortage of teaching staff, the existing professional course teachers have several times more class hours than their normal work and are often too exhausted to take into account teaching quality and research and reform work. Increasing investment in teaching staff is the fundamental way to solve this contradiction, but it is also a long-term process that is difficult to achieve results in the short term. Building a computer-assisted teaching system with a certain level of intelligence that can replace teachers to complete some teaching tasks is an effective way to alleviate the pressure on teachers in the short term. Firstly, it is necessary to design all system modules based on the specific application functions of artificial intelligence technology in e-commerce activities, ensuring that all system modules can adapt to the design requirements of the system structure.

In addition, it is necessary to study the specific performance of system modules based on the operational characteristics of all intelligent systems, so that the auxiliary characteristics of the system can be adapted to the intelligent teaching system. The use of intelligent auxiliary systems must ensure consistency with the characteristics of autonomous design mechanisms, so that all artificial intelligence technologies can be applied in the completed system structure planning scheme. E-commerce is equivalent to an economic and technological revolution, using the Internet as a platform and supported by computer network technology to achieve close integration of business technology, information technology, and management technology. It is a product of economic, scientific, and cultural development, with strong comprehensive characteristics. The development of e-commerce has made significant contributions to global economic progress. Early e-commerce was carried out through electronic technology, and with the continuous

progress of science and technology, with the support of the Internet, commercial activities such as electronic transactions, electronic settlements, and electronic banking were carried out through computers, truly realizing e-commerce.

Compared with traditional commercial activities, the market exchange venues of e-commerce have virtual characteristics, and the development of commercial activities can be free from time and space constraints. By using e-commerce platforms to meet the diverse needs of manufacturers, enterprises, and users, information acquisition is timelier and more convenient, and the understanding of the market is also more comprehensive, it provides excellent conditions for the development of commercial activities. The construction cost of online shopping platforms has always been at a high level. If the current information communication mechanism cannot ensure good adaptation to online shopping platforms, it will greatly restrict the construction of online shopping platforms and ultimately increase their operating costs.

## 2. THE PROPOSED METHODOLOGY

### 2.1 Functional orientation of e-commerce assisted teaching system.

Therefore, operating costs are the main cost component of online shopping platforms. It is necessary to design the information technology in artificial intelligence technology based on the operational requirements of online shopping platforms, so that the ERP system can adapt to the processing requirements of e-commerce in the new era. Compared with e-commerce, e-commerce is a unique concept that not only refers to enterprises establishing e-commerce platforms and conducting commodity transactions based on the Internet, but also does not simply represent the working form of e-commerce. It emphasizes on improving the modernization level of the entire business operation system with the support of information technology, optimizing business processes, integrating resources, promoting the optimization and upgrading of business operations, refining to design, production in various aspects such as sales, logistics, and management, comprehensive control is used to promote the efficient development of business activities. Moreover, e-commerce requires the assistance of supporting systems, including internet information systems, intermediaries, and

trading environments, to ensure mutual promotion and promote the smooth development of e-commerce activities.

To achieve the functionality of the system, the system includes two modules: an intelligent teaching assistance system and a student autonomous learning system. Intelligent teaching assistance system is a rule-based expert system that mainly evaluates students' learning situation and adjusts teaching strategies based on the evaluation results. At the same time, the intelligent teaching assistance system also includes learning functions that allow teaching experts to dynamically adjust the knowledge base according to teaching needs. Firstly, it is necessary to study all user decision setting mechanisms based on the operational requirements of human control technology, ensuring that all user role setting techniques can fully adapt to the operational characteristics of the system.

In addition, it is necessary to combine the technical level of managers in the process of user role setting to study and analyze the permissions of subsequent e-commerce activities, to ensure that the subsequent user operation activities can be technically compatible with the role setting procedures. The proposal of data mining meets the data processing needs of the big data era, and clarifies the valuable links between data by integrating data to provide information support for decision-making. Data mining, as a modern data analysis technology, can extract hidden valuable information, optimize integration, establish a data warehouse, improve data analysis efficiency, and provide decision-making basis and opinion reference for the development of e-commerce. The teacher login system selects test questions from the question bank based on the learning objectives of the teaching content and the level of student learning to organize the test paper. According to school conditions, teachers can choose to take exams online or print them into paper papers in traditional ways. After the exam is completed, the teacher uploads the EXCEL format score sheet to the system, which can analyze the exam situation. The teacher can choose the range of student groups to analyze.

For example, the knowledge mastery of a certain class or the mastery of a certain department. According to the specific business requirements during the role setting process, the management program should be controlled so that the role setting work can be consistent with the sample characteristics of e-commerce activities, and the application value of authorization factors can be improved. From the perspective of the application of artificial intelligence technology in the development of e-commerce. The implementation of data mining involves processing data objects with certain specificity, typically for large-scale databases and high-dimensional data.

## 2.2 The Application of Artificial Intelligence Technology in E-commerce Assisted Teaching System

Moreover, data mining requires standardized processing of multimedia data and object-oriented data to meet the processing requirements of non-standard format data. The operation of its data processing system cannot be separated from the support of other systems, especially the close connection with related systems. After students log in, they choose a mode for diagnostic exercises. After the diagnostic exercises are completed, the system will analyze the students' practice situation. Then, based on the analysis results, the system will extract exercise questions from the question bank that contain students' weaker knowledge points for practice.

The results of each exercise will be saved by the system and provided with learning suggestions for students.

Firstly, it is necessary to ensure that the application of artificial intelligence technology can adapt to the design requirements of databases and ensure that the development process of e-commerce activities can receive effective support from user resources. In addition, it is necessary to analyze the static processing requirements of user resources based on the operational characteristics of the database of e-commerce activities, so that all technical strategies can be optimized and configured under the reasonable utilization of static knowledge, ensuring that the database design work can achieve the configuration of the static resource foundation of e-commerce activities in the effective operation of the password library. We should combine the characteristics of existing sample resources to make quality judgments on all analysis programs, so that all analysis activities can achieve complete application of artificial intelligence technology in the control process of related results and improve the quality of e-commerce.

In modern social life, the security protection of magnetic cards, certificates of deposit, etc. that we apply mainly relies on passwords. However passwords also face the risk of loss and leakage, which poses a huge threat to the information and property security of social groups. In the internet environment, the rapid development of e-commerce has put forward higher requirements for information security. The application of artificial intelligence technology has promoted the formation of biometric authentication technology and played an important role in promoting the development of e-commerce. Biological authentication technology refers to the accurate identification of user identities through certain unique features or daily behavioral habits of the human body, thereby ensuring information security.

Fingerprint recognition, voiceprint recognition, palm print recognition, facial recognition, and other common biometric authentication methods provide security for the information and property of social groups in the modern social development environment. The application of biometric authentication technology has the characteristics of convenience, efficiency, and accuracy, achieving a close integration of biotechnology and computer science. It has good application value in fields such as banking, medical insurance, network information security, and plays an important supporting role in the development of e-commerce. After the knowledge expert logs in, they enter the interface for adding questions, Enter the corresponding questions and fill in specific knowledge point analysis, trust level, and other content for each option, then save and exit.

Mainly operators responsible for daily maintenance of the system, their main permissions include user management, question bank management, and password modification. Experts in this field have a strong professional background, can have a clear understanding and understanding of the knowledge points involved in this field, and can provide samples required for training neural networks. The main authority is to maintain the knowledge base and maintain samples of neural networks.

## 3. CONCLUSION

This paper combines AI technology with CAI technology, and introduces the mathematical model of Ebbinghaus Forgetting curve, so that CAI system has the intelligence of teachers. This system can dynamically adjust learning content based on students' learning situation, guide students to learn

independently, and assist teachers in analyzing exam results and providing certain teaching opinions. The prototype system of this system has been implemented on the Windows platform. Provide reliable technical support for the development of e-commerce. Under the conditions of modern social development, e-commerce is facing a more severe situation, which also puts forward diversified requirements for resources and technology. In the future, it is necessary to increase research on artificial intelligence technology and promote the development of e-commerce through the application of artificial intelligence technology, thereby promoting social and economic progress.

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# The Effect of Micro-Lesson Design on Normal English Teachers' Information Teaching Ability Under TPACK Framework in China

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**Abstract:** This study uses the quasi-experimental method to study the development of informatization teaching ability of pre-service English teachers. The two groups of samples of the research are the natural classes of pre-service English teachers. One is the experimental group and the other is the control group. After two pre-test and post-test questionnaires, the research problems will be solved through data collection and analysis: 1. To understand the current situation of English pre-service teachers' TPACK ability and the problems in the training process. 2. To identify the effects of Micro-Lesson Design on pre-service English teachers' achievement in TPACK ability. The results of this study will increase the theoretical and practical contributions to improving the informatization ability of pre-service English teachers.

**Keywords:** TPACK, Micro-lesson, Pre-service Teachers

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## 1. INTRODUCTION

In the information age, information technology has penetrated into all aspects of the field of education, promoting profound changes in teaching and learning methods. The COVID19 pandemic brought home the importance of technology in teaching and learning (Mishra & Warr, 2021). More teachers organize teaching with the help of information technology, which can better enable students to understand the knowledge taught by teachers (Li, 2017). So, how to improve teachers' information teaching ability in order to better carry out teaching has been an important topic of current academic research. In the teacher education system, pre-service teacher education plays an important role in the training of high-quality teachers. It is an essential professional quality for normal university students to integrate technology into teaching, which has become the core content of the professional development of pre-service teachers in the information age (Li, 2020).

The quality of pre-service teacher education affects the development and stability of teachers in a country to a great extent. Therefore, pre-service teacher education must also keep in line with the development of the Times. In another word, pre-service English teachers should have strong information technology ability in teaching.

In China, the first study on the "information teaching ability" was Liu Ruiru's Study on Strategies for Improving the Information Teaching Ability of University Teachers in Underdeveloped Areas in 2004 (Liu, 2004). Since 2015, teachers' information teaching ability has attracted more and more attention from scholars, and has become the core and focus of the research field of teacher professional development. More and more researchers focus on information teaching ability of pre-service teachers.

In the development of educational informatization, the United States has always been at the forefront of various countries and regions. In the late 1990s, the U.S. Department of Education released a paper on the subject called the National Educational Technology Plan: Preparing American Students

for the 21st Century. The UK is one of the world's leading countries in information and communication technology education. In the 1990s, the UK launched the Information and Communication Technology Training Programme (ICT).

## 2. THE RESEARCH THEORY AND OPERATIONAL DEFINITIONS

### 2.1 The TPACK theory

TPACK (Technological Pedagogical Content Knowledge) refers to the integration of technical teaching Knowledge to subject teaching, which has been used by many scholars to study the promotion of teacher information technology. The technology, pedagogy, and content knowledge (TPACK) framework is recommended to be used as a way to think about effective technology integration (Harris, Mishra, & Koehler, 2009) so as to cultivate more excellent teachers to meet the development of information technology for the motherland.

And TPACK has emerged as a useful frame for describing and understanding the goals for technology use in preservice teacher education (Schmidt, et. al., 2009).

According to Mishra and Koehler (2006), the TPACK framework consists of seven types of knowledge associated with the integration of technology in instruction (see Figure 1): technological knowledge (TK), pedagogical knowledge (PK), content knowledge (CK), pedagogical content knowledge (PCK), technological pedagogical knowledge (TPK), technological content knowledge (TCK), and TPACK. TPACK itself focuses on teachers' knowledge and use of technology, pedagogy, and content interactively that is, meaningful uses of technology to support instructional practices within a particular content area.

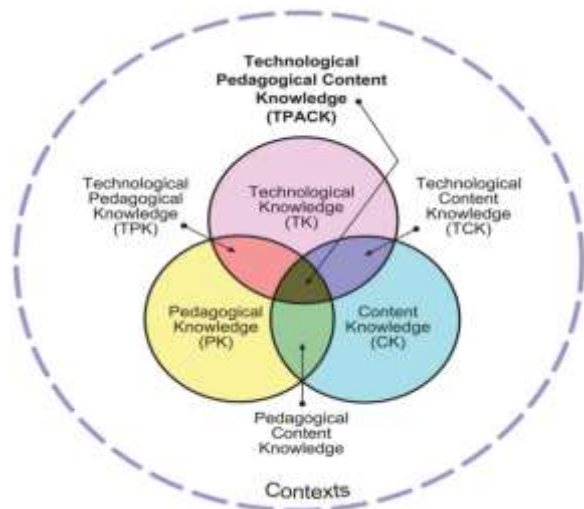


Figure. 1 The TPACK framework

## 2.2 The Pre-service teachers

Pre-service teachers in this study mainly refer to the students majoring in normal colleges and universities who are trained as candidate teachers in primary and secondary schools in the future. Their employment goal is clear, that is, mainly engaged in primary and secondary schools or educational institutions teaching management work, as the national education cause of teacher resources for training.

## 2.3 The Informational Teaching Ability

Information-based teaching has put forward new requirements to teachers, and requires teachers to have the ability of information-based teaching. According to literature analysis, there has not been a unified definition of information-based teaching ability so far, and scholars have put forward different definitions from different perspectives: Zhang Ying and other scholars believe that information teaching ability is the ability of teachers to engage in teaching activities under the guidance of scientific theories and with the help of information technology in an information environment, and finally achieve teaching objectives and complete teaching tasks (ZhangYing, 2016).

Although scholars have different definitions of information teaching ability, their essence is roughly the same, which is to promote the teaching process with the help of information technology and information resources. In the era of education information, teachers are required to have corresponding teaching ability, that is, information teaching ability.

## 2.4 The Micro-lesson

The Definition of Micro Lesson Abroad, the concept is first proposed by the senior teaching designer, David Penrose in New Mexico States of the US, he thinks that the purpose of the study is to use the method of Constructivism in the short time. In China, the concept of “micro lesson” is proposed by professor Hu Tiesheng (Hu, 2011) of Foshan, Guangdong province. In summary, the common point of Micro-lesson is obviously, that is: 1) based on video, 2) time length is short. The difference is the productive method video of the video, or through the PPT software to convert, or through the recording screen and video software to record a video. Professor Jiao Jianli (2013) pointed that TPACK is the realization of information technology and curriculum integration, also the knowledge framework of teacher professional development. The development of TPACK is of great significance to the effective use of technology for teaching and micro teaching.

## 3. THE PROPOSED METHODOLOGY

### 3.1 The Research purpose

The purpose of this study is to investigate whether differences in use of micro-lesson Design are related to pre-service English teachers' TPACK ability, and the following is two objectives of the study,

- i. To understand the current situation of English pre-service teachers' TPACK ability and the problems in the training process:
- ii. To identify the effects of Micro-Lesson Design on pre-service English teachers' achievement in TPACK ability .

### 3.2 The Research population

Two classes of final-year normal college pre-service students majoring in English (pre-service English teachers) from a normal college in China will be selected as the research candidates/objects. The reason for selecting them is that they have taken educational technology courses and as many English teaching methods courses as possible, and have acquired certain modern educational technology ability and subject teaching methods and methods ability. Two classes will be chosen to carry out the experimental design. And one is the experimental group and the other is the controlled group. The number of each group is over 30.

### 3.3 The Research questions

In the era of big data, the development of pre-service English teachers' information teaching ability is directly related to the level of English teaching in the future basic stage. Therefore, this research studies the development of pre-service English teachers' information teaching ability. What's more, this study attempts to build a classroom micro-lesson teaching design that can improve the information teaching ability of pre-service English teachers. Based on above, two research questions are put forward,

- 1). What's the level of pre-service English teachers' information teaching ability under the TPACK framework ?
- 2). What's the effect of Micro-lesson design on pre-service English teachers' information teaching ability under TPACK framework in the college of China?

### 3.4 The Research methods

This study will adopt the quantitative method: quasi-experimental design. In the quasi-experimental design, IV is Micro-lesson Design and DV is pre-service teachers' information teaching ability. The data collected through the questionnaire/scale in pre- and post- test will be analyzed by descriptive and inferential statistics in SPSS. And some tools will be used to collect the research data, such as Literature analysis, Interview, Questionnaire.

- 1). Literature analysis: Through literature analysis, the researcher will study domestic and foreign research literature to determine the specific research content. Through literature analysis, the researcher will seek the theoretical basis for the development of Micro-lesson Design construction in the research.
- 2). Interview: In order to verify the results of the questionnaire survey and the experience and feelings of the research participants in the process of experimental teaching, and at the same time to obtain more specific and reliable information, the research will conduct in-depth interview.

3). Questionnaire: Questionnaire is mainly used in this study to investigate the status quo of information teaching ability of pre-service English teachers and to collect data before and after the experiment, that is pre- and post-test, so as to provide data for the comparative analysis of experimental results.

### 3.5 The Design of questionnaire

In this study, Questionnaire (TPACK scale) will be used as instruments to collect data. Since the TPACK scale was developed by researchers in other countries, the reliability and validity of the questionnaire will be tested before it is officially put into the survey. The questionnaire will be sent to the QQ group of the students in the class, and then the students are told to fill in the questionnaire carefully according to their actual situation.

## 4. THE QUSI-EXPERIMENT

### 1.Design of Quasi-experimental method

There will be two groups, one is experimental group (about 30 students) and the other is the control group (about 30 students). The whole period of the quasi-experiment is 8 weeks. Before the experiment, research objects in both groups will participate in the TPACK Scale questionnaire. After that, the experimental group will receive 6 weeks of learning about information teaching content, and then will complete a task of micro-lesson design. The control group will not receive additional information content learning. After learning practice, research objects in both groups will participate in the TPACK Scale questionnaire again. Descriptive and inferential analyses of pre - and post-test data will be performed.

### 2.Pilot Study

The researcher will conduct a pilot study of the TPACK scale to ensure the validity and reliability of the instrument. In pilot study, 50-60 senior pre-service English university students who have similar background to the population in actual study will be chosen.

### 3.Pre-test

After reliability and validity analysis, this modified scale will be used to carry out pre-test for the participants. The purpose is to explore the TPACK level of present pre-service English teachers. The data collected in pre-survey is also used to compare with the data from the post survey.

### 4.Micro - Lesson practice

For Micro Lesson practice, the researcher will do a 8-week Micro-lesson teaching experiment. The Micro-lesson practice will be used in the experimental group, while the controlled group will be taught by the traditional teaching methods. During the first 7-week research practice, several themes will run through it, such as: The basic connotation of micro lesson Topic; Micro teaching design and teaching courseware ; Knowledge of media and processing ;The software operation ; Photography and camera technology ;Teaching art in technology integration; The basic connotation of micro lesson and so on. These topics will be addressed through a combination of teacher teaching and student participation. In week 7, participants are asked to make a micro lesson through pair or group work.

### 5.Post-survey

Post-survey is carried in week 8. The researcher will apply the same TPACK scale to carry out the post survey when the micro-lecture training is finished. The researcher will compare the data from pre-survey with the data from the post survey.

Then the effects of this micro-lesson practice in enhancing pre-service English teachers' information teaching ability will be tested.

### 6.Data collection

The data collected through the questionnaire/scale in pre- and post- test will be analyzed by descriptive and inferential statistics in SPSS. And some instruments will be used to collect the research data, such as Literature analysis, Interview, Questionnaire.

### 7.Data Analysis

In order to answer the first question, "What's the level of pre-service English teachers' information teaching ability under the TPACK framework ?", analyses of the resulting data will be performed using both descriptive and inferential statistics.

In order to answer the second question, " What's the effect of Micro-lesson design on pre-service English teachers' information teaching ability under TPACK framework in the college of China?", descriptive and inferential statistics of pre- and post-test will be carried out. And also, discourse analysis of the reflections and comments collected will be adopted besides the use of pre and post-test.

## 5. ACKNOWLEDGEMENT

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# The Effect of Micro-Lesson Design on TPACK Level Development of Pre-Service English Teachers in China

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**Abstract:** In this study, quasi-experimental methods will be used to study the cultivation of pre-service English teachers' teaching ability of technology integration, which is termed TPACK (Technological Pedagogical Content Knowledge). The samples in this study are natural classes of two pre-service English teachers. One group is the experimental group and the other is the control group. Through the two questionnaires of pre-test and post-test, the research objectives will be achieved through data collection and analysis: 1. To understand the perception of pre-service English teachers' TPACK level based on the Technology- dimensions. 2. To explore how to construct a practical Micro-Lesson Design to develop the TPACK level of pre-service English teachers. 3. To identify the effect of Micro-Lesson Design on pre-service English teachers' achievement of TPACK level. The results of this study will contribute both theoretically and in practice to improving the integration of technical competence in subject teaching of pre-service English teachers.

**Keywords:** TPACK, Micro-lesson, Pre-service Teachers

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## 1. INTRODUCTION

Cloud computing, artificial intelligence and AI technology have rapidly penetrated into all fields of human life and production. Information technology has also had a profound impact on the field of education, and education informatization has become an inevitable trend with the rapid development of the Internet, emerging technologies. Compared with previous learners, the students are more willing to hide behind the computer screen to study or think, or lower their head to swipe the mobile phone to get information (Ma, 2017). Under the background of education informatization and teacher professional development, teachers need to constantly improve their informatization teaching abilities.

The Ministry of Education of the People's Republic of China (2012) issued the Ten-year Development Plan for Education Informatization (2011-2020), exploring the comprehensive and deep integration of modern information technology and education. In order to promote the development of education informatization in the new era, the Ministry of Education of the People's Republic of China (2018) issued the "Education Informatization 2.0 Action Plan", which is an action plan to actively promote the sustainable development of education informatization at the national level.

As an international language, English teaching occupies a large proportion in schools, and English is also compulsory in many countries. So the cultivation of pre-service English teachers' teaching ability becomes particularly important.

## 2. THE RESEARCH THEORY AND OPERATIONAL DEFINITIONS

### 2.1 The TPACK theory

TPACK (Technological Pedagogical Content Knowledge) focus on the knowledge and ability to integrate technology into specific subject (Mishra, 2006). At the core of TPACK framework, there are three areas of knowledge: Content, Pedagogy and Technology. According to Koehler, et al. (2007), Content (C), is the subject matter that is to be learned/taught. The content to be covered in high-school social studies or algebra is very different from the content to be covered in a graduate course on computer science or art history. Technology (T), broadly encompasses standard technologies such as books and chalk and blackboard, as well as more advanced technologies such as the Internet and digital video, and the different modalities they provide for representing information. Pedagogy (P), includes the process and practice or methods of teaching and learning, including the purpose (s), values, techniques or methods used to teach, and strategies for evaluating student learning (see Figure 1).

However, beyond seeing C, P, and T as being useful constructs in and of themselves, our approach emphasizes the connections and interactions between these three elements. For instance, a consideration of P and C together results in Pedagogical Content Knowledge (PCK). Similarly, T and C taken together produces Technological Content Knowledge (TCK). A consideration of the overlap between T and P results in Technological Pedagogical Knowledge (TPK). Finally, a consideration of all three elements (T, P, and C) results in Technological Pedagogical Content Knowledge (TPCK).

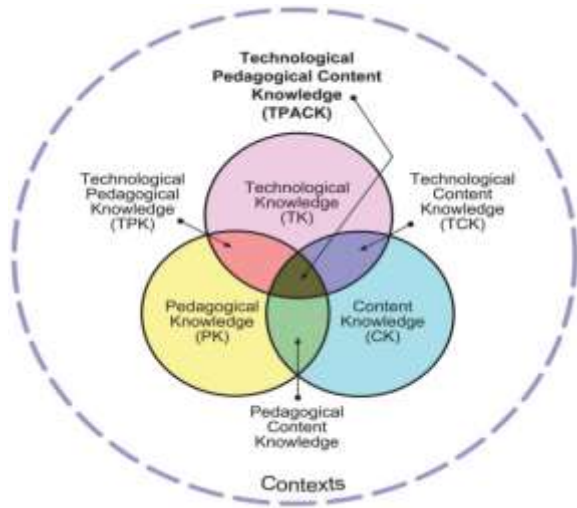


Figure. 1 The TPACK framework

## 2.2 The SAMT Model

SAMT is a teaching model of technology integration including four levels: substitution, augmentation, modification, and redefinition. And SAMT provides a framework to support educators and instructional designers in creating optimal learning experiences using mobile devices in education (Romrell et al., 2014). The SAMR Model can be understood by the following four classifications of technology use:

- Substitution: The technology provides a substitute without functional change.
- Augmentation: The technology provides a substitute but with functional improvements.
- Modification: The technology allows the educational activity to be redesigned.
- Redefinition: The technology allows for the creation of tasks that could not have been done without the use of the technology.

## 2.3 The Pre-service teachers

Pre-service teachers have the similar meaning with the words "normal students", "student teacher" and "candidate teacher". Majority of them will be teachers in primary and secondary schools after graduation. Pre-service teachers in this study mainly refer to the students majoring in normal colleges and universities who are trained as candidate teachers in primary and secondary schools in the future.

## 2.4 The Micro-lesson

Micro-course is a new teaching pattern and teaching philosophy combined with the Internet (Yabin & Hongen, 2016). Micro-lesson can be traced to the micro video used by Khan, Bergmann and Sams. The core content of "micro lesson" is classroom teaching videos, and it also includes teaching design, material courseware, teaching reflection, practice test, student feedback, teacher comments and other auxiliary teaching resources related to the teaching theme. Micro-lesson is not cutting out a video clip from the traditional classroom video, it is educational technology product carefully designed through specific processes, often includes 5 to 10-minute micro video, micro-lesson teaching plan, micro courseware, micro resource and so on (Liang & Luo, 2015).

In summary, micro courses only teach one or two knowledge points, without complex curriculum system, and without numerous teaching objectives and objects, seemingly without systematization and comprehensiveness, which is called "fragmentation" by many people. The micro lesson in this study refers to a teaching video micro-course of about 10 minutes, which is a teaching design task assigned to the research objects by the researcher.

## 3. THE PROPOSED METHOD

### 1. Research purpose

The purpose of this study is to develop English pre-service teachers' ability to integrate technology to subject teaching. Therefore, TPACK framework was chosen to assess the technology ability of English pre-service teachers. Similarly, the micro-lesson design will be used as an independent variable, TPACK level as a dependent variable. Accordingly, the purpose of the study entails:

- To understand the perception of pre-service English teachers' TPACK level based on the Technology- dimensions.
- To explore how to construct a practical Micro-Lesson Design to develop the TPACK level of pre-service English teachers.
- To identify the effect of Micro-Lesson Design on pre-service English teachers' achievement of TPACK level.

### 2. Research population

After getting agreement of ethic from related college, this study is intended to take the senior pre-service English teachers in a college in China as the population of the research. About 60 senior pre-service English teachers in two classes will be chosen. One class is experimental group, and the other is control group. The reason for choosing pre-service English teachers is that they have already studied English teaching methodology courses and educational technology courses. Meanwhile, the pre-service English teachers are those who are about to graduate and begin their education jobs, and they are in urgent need of improving the level of information-based teaching.

### 3. Research questions

To achieve the purpose of the research, the following questioned are prepared:

- (1). What's the perception of TPACK based on the Technology- dimensions of pre-service English teachers?
- (2). How can the Micro-Lesson Design be constructed to affect the pre-service English teachers' TPACK level based on the Technology- dimensions?
- (3). How does Micro-Lesson Design affect the development of pre-service English teachers' TPACK level based on the Technology- dimensions?

## 4. QUASI-EXPERIMENT

This study adopts a mixed method of quantitative and qualitative. A Quasi-experimental will be carried in the research. Questionnaire scale (Schmidt, 2009) will be used to carry out relevant research.

The Quasi-experimental will be employed in the research. More specifically, nonequivalent control group pretest/posttest design is used, which refers to a design in which at least two nonequivalent groups are given a pretest, then a treatment, and then a posttest measure (Jackson, 2008).

In the research, there are two groups of participants who are senior pre-service English teachers in a college in China. One is an experimental group and the other is the control group. Before the experiment, the researcher will review the literature and choose the theories, method instruments, authoritative questionnaire-TPACK scale, and other related materials. In the present study, the Quasi-experimental will be performed in three phrases: 1. Pre-test, 2. Treatment of Micro-lesson Design, and 3. Post-test. Research design is shown in Figure 2 below.

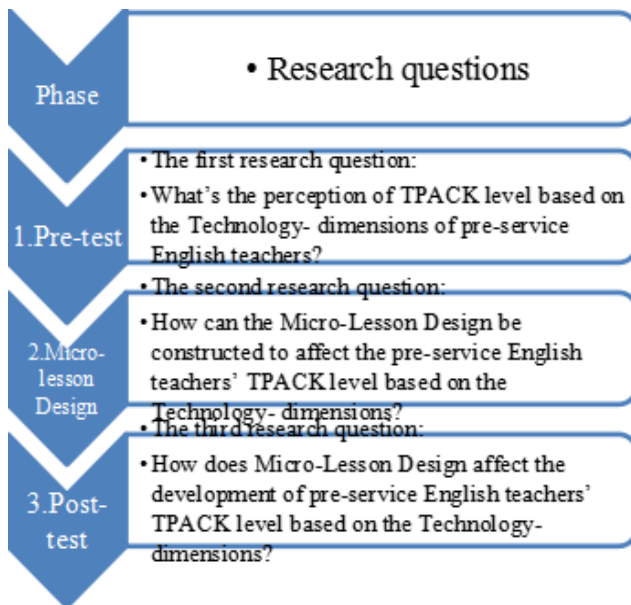


Figure. 1 Research Design

### 1. Pre-test

After pilot study, a pretest is carried out to understand the perception of TPACK level of pre-service English students and allows us to assess whether the groups are equivalent on the dependent measure before the treatment is given to the experimental group (Jackson, 2008). Authoritative TPACK questionnaire (Schmidt, 2009) will be completed by all the participants in both control group and experimental group at the first week of the experiment. And then the data will be collected. In the pre-test phase, the objective is expected to achieve. That is to answer the first question of the research: "What's the perception of TPACK level regarding TPACK level based on the Technology- dimensions of pre-service English teachers?"

### 2. Micro-lesson Design

Micro-lesson Design will be used as IV (independent variable) to affect TPACK level (DV: dependent variable) of the participants in the phase. The phrase of Micro-lesson Design will last 12 weeks. In the first 8 weeks, the participants will be taught some knowledge and skills related technology in order that they can integrate technology to subjects in the following task: Design a micro-lesson based on technology. During the 9th week to 10th week, participants will have group discussions on the design of micro-lessons. Then in the 11th week and 12th week, It is time for participants to present the Micro-lessons that are required to design on Dingding online teaching platform in groups. The objective of the phrase is to answer the second research question: "How can the Micro-Lesson Design be constructed to affect the pre-service English teachers' TPACK level based

on the Technology- dimensions?". The research will answer the second research question based on SAMR teaching model and TPACK theory. Finally, SAMR-TPACK module will be developed to answer the second research question.

### 3. Post-survey

For Post-survey, based on the results of pretest and posttest, researchers can assess any changes that may have occurred in each group after treatment by comparing the pretest measures for each group with their posttest measures. Thus, not only can we compare performance between the two groups on both pretest and posttest measures, but we can compare performance within each group from the pretest to the posttest (Jackson, 2008). In post-survey, Questionnaire scale used in pre-survey will be employed again to test the TPACK level of participants as posttest of the quasi-experiment. The objective of the phrase is to answer the third research question: "How does Micro-Lesson Design affect pre-service English teachers' TPACK level regarding TPACK level based on the Technology- dimensions?".

### 4. Data collection

The data will be collected through the questionnaire in pre- and post- test. And also some instruments will be used to collect the research data, such as Literature analysis, Interview, Questionnaire.

### 5. Data Analysis

This study is performed based on three phases: pre-test, Micro-lesson Design, post-test. Meanwhile, three research questions are put forward. The first phase will mainly focus on the first research question; the second phase will answer the third research question; and the third phase will focus on the second research question.

For the first research question: "What's the perception of TPACK level of pre-service English teachers?". The authoritative TPACK scale will be used to collect the data of pre-service English teachers. SPSS will be employed to analyze the data by descriptive analysis, such as mean.

For the second research question: " How can the Micro-Lesson Design be constructed to affect the pre-service English teachers' TPACK level based on the Technology- dimensions?", the research will answer the second research question based on SAMR teaching model and TPACK theory. Finally, SAMR-TPACK module will be developed to answer the third research question. The data will be analyzed by content analysis.

For the third question: "How does Micro-Lesson Design affect the development of pre-service English teachers' TPACK level based on the Technology- dimensions?", data in posttest will also be collected by questionnaire used in pretest. And there will be two hypothesis to be tested in order to answer the third question. One Hypothesis H1 "There will be significant difference regarding TPACK level based on the Technology-dimensions within Experimental Group from pretest to posttest after Micro-lesson Design on pre-service English teachers." will be verified by Independent sample T test. Independent-groups T test refers to a parametric inferential test for comparing sample means of two independent groups of scores (Jackson, 2008). And the other Hypothesis H1 " There will be significant difference regarding TPACK level based on the Technology- dimensions from pretest to posttest for the experimental group than for the control group." will be verified by Correlated-groups T test. Correlated-groups T test refers to a parametric inferential test

used to compare the means of two related (within- or matched participants) samples (Jackson, 2008).

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# Analysis and Enlightenment of the "Regulatory Sandbox" Model for Financial Technology Innovation

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**Abstract:** The application of the "regulatory sandbox" model in China's financial technology innovation supervision pilot has achieved positive results, with 83 "box" financial technology innovation projects benefiting people and enterprises landing, releasing market vitality, and enhancing the ability of financial services to the real economy. However, with the expansion of the pilot project "from point to surface", the article takes the "regulatory sandbox" model pioneered by the UK as an example to analyse the operational mode and significance of the "regulatory sandbox" and believes that incorporating financial technology innovation into the regulatory sandbox for regulation is an effective technical approach to solve the problems of financial technology, including internet finance regulation in China. On this basis, corresponding policy recommendations were proposed from the perspectives of financial technology regulatory strategy, regulatory logic, and regulatory information sharing mechanism.

**Keywords:** Analysis and Enlightenment, Regulatory Sandbox , Financial Technology

## 1. INTRODUCTION

FinTech is a technology driven financial innovation. With the development of new generation information technology, such as artificial intelligence, blockchain, cloud computing, big data, and the deep integration of finance and technology, financial technology innovation has become an important driver to enable financial transformation and upgrading, enhance financial inclusion, and improve financial service capabilities. However, the cross market, cross business and cross time and space characteristics of FinTech also make credit risk, Liquidity risk, network risk and information security risk more prominent, which has brought significant adjustments to the traditional regulatory model. To meet the needs of financial innovation and risk prevention and control, the Financial Conduct Authority (FCA) took the lead in proposing the "regulatory sandbox" model.

From the scandalous lending platform business model of P2P to the characterization of ICO as illegal fundraising and the closure of domestic Bitcoin trading platforms, we can see that the risks of fintech cannot be underestimated. The main body of fintech is still finance, and technology is only a carrier serving finance. Therefore, the financial attributes of fintech itself determine its high-risk characteristics, and the application of technology in financial products makes it more difficult to detect risks. At the same time, business transactions between different industries in the market make various risks intertwined and difficult to distinguish, making it easy for regulatory authorities to fail and shirk their responsibilities in the process of separate operations and supervision.

In response to the rapid development of fintech, many financial regulatory authorities in many countries have introduced flexible regulatory systems. Although specific arrangements vary, the overall goal is for the fintech industry to adapt flexibly to the current regulatory system and provide convenience for regulatory authorities to track the development of fintech. The coupling development of financial innovation and technological innovation is an irreversible innovation trend, but it will also bring a series of regulatory difficulties. On the one hand, with the continuous

innovation of technology, the hidden risks will become more dispersed, and the operational risks of information technology will also increase, increasing the possibility of regulatory gaps and regulatory arbitrage. On the other hand, the integration of finance and technology will lead to an overall increase in risk levels. The combination of finance and technology may not only improve consumer welfare, but also introduce high-risk customer groups, which may affect the correct assessment of financial risks or cause mispricing, leading to an increase in the risk level of the entire industry.

In terms of the basic principles of financial supervision, preventing financial Systematic risk, stabilizing the order of financial market, and correcting the information asymmetry of financial market are all measures of financial supervision, so it is feasible to start from the financial supervision system to resolve risks. However, in terms of China's current financial regulatory system, whether it is financial legislation, regulatory system, or self-discipline supervision, it has shown an inability to adapt to the supervision of financial technology innovation.

The 'regulatory sandbox' is the application of the sandbox model in the financial field, allowing fintech companies to practice their innovative products, service processes, and business models in a real but controlled environment. Regulatory agencies can deepen their understanding of relevant technologies, adjust, and improve regulatory rules based on the performance of innovative models in the 'sandbox', and by monitoring the testing process and evaluating the test results, it is determined whether the enterprise is officially authorized to promote its innovative achievements outside the sandbox. The main challenge faced by current fintech is the balance between development and risk regulation.

## 2. THE PROPOSED METHODOLOGY

### 2.1 The Development Trends of the "Regulatory Sandbox" Model

The 'regulatory sandbox' solves the dilemma faced by financial regulatory authorities. Firstly, the 'regulatory sandbox' provides a simulated market environment in which

fintech products can be traded for simulation purposes; Secondly, a bridge has been built between regulators and fintech companies. In this way, not only FinTech start-ups can make bold innovations within the specified scope, but also the regulatory authorities can keep abreast of financial innovation at any time, accumulating experience for later formulation of FinTech policies and regulations. The 'regulatory sandbox' is like a reform pilot zone, allowing for real or virtual testing of new fintech products or services in a controllable testing environment. This model simplifies market access standards and processes within a limited scope, exempts the application of certain regulations, and allows new businesses to quickly land and operate under the premise of clearly protecting consumer rights. It can also be promoted based on its testing in the sandbox.

The regulatory sandbox model is first and foremost beneficial for the development of technology enterprises, providing regulatory pilot zones for emerging formats such as fintech and new finance, and supporting the development of start-up finance or fintech enterprises. From the perspective of the coupling of financial innovation and technological innovation, on the one hand, the coupling development of financial innovation and technological innovation needs policy support and encouragement at the initial stage; On the other hand, there are many potential risks behind the coupled development of the two, which will have unpredictable impacts on the financial system and require more effective regulation and regulation.

With the rapid development of the coupling between finance and technology, China's traditional regulatory model will be difficult to meet the various needs of the coupling process. Building a flexible, inclusive, and forward-looking regulatory framework is extremely important for the coupling development of the two innovative systems. It should not only promote the practical development of technology finance, but also protect the rights and interests of financial consumers and maintain market stability. In the process of building a new regulatory system driven by technology and led by data, the functional value of the "regulatory sandbox" mechanism is mainly manifested as: embedding the concept of financial inclusivity, making it more flexible in terms of operational space and elastic range; Highlighting the core value of protecting consumer rights and ensuring the security of customers' financial information. We have established a proactive and adaptive new regulatory system, which has effectively achieved interaction between regulatory agencies and innovative enterprises. In short, the "regulatory sandbox" can effectively reduce the game cost of regulation and improve regulatory efficiency.

## 2.2 The Coupling Mode of Financial innovation and Technological Innovation in China

In the process of implementing the "regulatory sandbox" model, financial regulatory authorities should develop and clarify complete processes and maintain relative stability. From the perspective of the implementing entities, the implementation of the "regulatory sandbox" in most countries or regions is the responsibility of government regulatory agencies that carry out unified supervision of the financial industry and carry out top-level design, providing legislative or policy guarantees. From the perspective of regulatory objectives, most countries or regions focus on the principle of competitive neutrality in the "regulatory sandbox" testing, which is open to both licensed and non-licensed institutions.

The regulatory sandbox adopts a dynamic regulatory approach to conduct real-time market monitoring of financial technology products that enter the sandbox for testing. Whether it is the transaction volume, cash flow, target audience, applicable regulatory measures, etc. of the product, these data are all truthfully and completely recorded.

Regulatory authorities can use this data to understand the true situation of the fintech company and predict the future development prospects of the product, thereby deciding whether to launch the tested product on the market. The introduction of the 'regulatory sandbox' has greatly expanded the connotation of 'financial consumer protection'. The existing protection of financial consumers is based on behavioral finance, information asymmetry and other economic theories, focusing on the protection of consumers' rights and interests, such as the right to know, the right to consume freely, the right to fair trade, the right to confidentiality and security, and the right to seek compensation.

The introduction of the "regulatory sandbox" will base the connotation of protection on "rights protection" but higher than existing rights. In the relevant documents released by the UK FCA and the Singapore monetary authority on the regulatory sandbox mechanism, it has repeatedly emphasized consumer benefits, including reducing prices, improving service quality, more mutually beneficial transactions, enhancing convenience and availability, helping consumers identify and mitigate risks, etc. This fully demonstrates that the underlying logic of the "regulatory sandbox" is to promote effective competition in the financial market, which will benefit consumers. Scientific and technological progress cannot be separated from the support of finance. The continuous development and application of technology need the support of financial capital. At the same time, financial innovation can rely on the development and application of modern technology in the financial field for continuous development. Finance has powerful information gathering and processing functions. In the coupling of financial innovation and scientific and technological innovation, it is necessary to make full use of this feature of finance, and at the same time, with the support of electronic technology and professionals, to achieve the effective interaction between the two innovation systems and achieve the purpose of gathering, integrating, and optimizing various scientific and technological financial resources.

At the same time, based on the analysis of the impact of "regulatory sandbox" on the coupling model of financial innovation and scientific and technological innovation, we should use the idea of "regulatory sandbox" to realize the interaction between regulation and innovation and promote its stable and sustainable development. Financial technology innovation has not changed the essence of finance, and the regulatory bottom line of testing projects must not be exceeded. On the surface, the testing projects of the "regulatory sandbox" mechanism use artificial intelligence and other technologies and have undergone various forms and contents of innovation in financing, insurance, payment, and settlement fields. However, in essence, these innovative projects have not changed the fundamental attributes of financial business. Various innovative technologies are still applied to China's financial field, and a relaxed regulatory environment must have a bottom line. From the perspective of testing methods, Regulatory authorities will comprehensively consider institutional and project perspectives, based on the size of the fintech market within the country or region.

### 3. CONCLUSION

China can start from its own national conditions and draw on advanced regulatory technologies from abroad to promote the matching of regulatory technology with the development of financial technology and improve the safety and efficiency of the financial market. Therefore, only by deeply integrating technology and regulation without harming financial stability and consumer rights can we further promote the innovative development of financial technology. It is necessary to promote the integration of blockchain, Big data, artificial intelligence and other technologies, build a new "regulatory sandbox" model that adapts to the characteristics of FinTech, provide a safe and convenient testing environment for FinTech innovative applications, select and cultivate projects with strong innovation, wide application and good demonstration, achieve a virtuous circle between regulatory technology and FinTech, and promote the high-quality development of FinTech.

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# A Model of Commercial Bank Customer Profit Contribution Based on Computer-Aided Credit Scoring Model

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**Abstract:** In the increasingly fierce market competition environment, commercial banks have adopted a "customer-centric, market-oriented" business development strategy. For different customer groups, provide differentiated services to fully meet the individual needs of customers, and at the same time provide better financial services, and then construct a basic bank profit contribution model macroscopically, and then use a state-owned commercial bank. The establishment of UML modeling and multi-dimensional data model of contribution analysis for some asset data of sub-branches is a solution for customer profit contribution based on the powerful processing capability of modern highly developed IT technology.

**Keywords:** Commercial Bank, Customer Profit Contribution, Computer-Aided, Credit Scoring Model

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## 1. INTRODUCTION

In recent years, in order to adapt to the increasingly fierce market competition environment, various commercial banks have changed their product-centric business models [1], and began to develop and nurture those customers that are of great significance to their own development in a planned and step-by-step manner. On the basis of differentiated [2] marketing, avoid wasting direct costs on low-value transactions, and invest more energy in high-value customers [3]. To do this, commercial banks must first truly understand customers. The 20/80 rule proposed by economist Pareto (Pareto) points out that 80% of the results of things are due to 20% [4] of the causes. If this rule is applied to the customer management work in the commercial banking market, it means that 80% of the income comes from only 20% of the customer's contribution [5].

Now with the continuous improvement of informatization in all walks of life [6], experts estimate that the amount of information doubles every 18 months on average, and our utilization rate of this information is only 5%-10%, and some industries are even far lower than this ratio [7]. How to mine useful and effective information from a large amount of data has become an urgent practical need. The author observes the current situation of data management in Chinese banks. my country's banks have the world's most advanced hardware facilities and data warehouses [8], and collect a large amount of data. ". Due to the homogeneity of banking products, such a bank's competitive advantage often lies in whether it can grasp the business rules behind the massive [9] business and customer information from a large amount of data, and make various reasonable decisions in order to compete in the fierce market competition. win. The consumer finance [10] business has the characteristics of risk diversification, light capital, and high technology content, which is beneficial for commercial banks to cope with the challenges brought [11] about by the narrowing of interest margin space. Relevant data shows that my country's consumer finance market has been heating up in recent years, and consumer finance business has gradually become a new profit growth point for commercial banks [12].

Different from the traditional credit business of commercial banks, consumer finance business mainly meets customers' demand for "small", "short-term" [13], "high-frequency" and "fast" consumer loans: the amount of a single loan is relatively small, generally ranging from several thousand to several dozen. The loan period is short [14], and the single profit is relatively low; it is basically a pure credit loan without collateral; the customer loan frequency is high [15], and the number of loans is far more than the traditional credit business; customer requirements for loan review efficiency higher [16]. Data mining technology plays an important role in data collection, data preprocessing, classification and prediction in the management of household profit contribution model [17]. In order to efficiently and accurately mine potential useful information in customer historical transaction data information, we need to use data mining information technology to conduct analysis and demonstration [18]. Banking financial institutions have a great advantage in storing customer historical data information, and each bank already has its own huge database or data warehouse [19]. Banks can use data mining technology to extract and classify the effective data of these data and build models, and mine useful information for banks to guide the bank's marketing activities, customer maintenance strategies and product decision-making [20].

Therefore, customer profit contribution is an important part of customer relationship management, and it has become more meaningful and valuable to conduct deeper analysis and research on it. Through a transparent [21], accurate and consistent contribution analysis, commercial banks can improve their understanding of the profit drivers of their customers, and at the same time provide [22] help for the above strategic thinking. The key to success in the future financial industry lies in how banks can fully grasp the understanding of their own customers/products [23], and find their own core competitiveness from them, so as to gain market leadership and establish and maintain a high-yield business model. Among them, the establishment [24] of the customer contribution analysis module is the most important basis for us. Whether it is the implementation of customer-centric business strategies, or how to select and manage

customers during marketing, in order to maximize their lifetime value, only the Through a transparent, accurate, and consistent contribution analysis, and all members practice, can we grasp the trend and strengthen the competitive advantage.

## 2. THE PROPOSED METHODOLOGY

### 2.1 The Computer Aided Credit Model

The personal credit reporting system is a complete set of systems for confirming personal credit history, credit status, and credit level. It is the institutional basis of a country's economic and financial development, including personal credit files, personal credit assessment, personal risk early warning and personal credit risk management. Its establishment and development play a vital role in boosting the development of a country's personal banking business. The FICO model is the most authoritative personal credit scoring model in the world today. The model first describes the indicators of consumers' credit, morality and ability to pay, and then divides each indicator into several grades to determine the score of each grade, then calculates the weight of each indicator, and finally obtains the total score of consumers.

The FICO score ranges from 325 to 900. The basic idea of its calculation is to compare the borrower's past credit history data with the credit habits of all borrowers in the database to check whether the borrower's development trend is consistent with frequent defaults, random defaults are there similar trends among various financially distressed borrowers, such as overdrafts and even bankruptcy filings? The object of personal customer relationship management of commercial banks is the personal customers who receive bank financial services or have bank financial products. A stable customer relationship is the primary goal of customer relationship management. A comprehensive and complete understanding. For example, in the customer list stored in the mass storage of commercial banks, who are the key customers who are bringing profits to the bank, who are the customers with development potential that can bring profits to the bank in the future, who are the general contributing customers, and who should quit customer. It is only a wish to establish a good and stable customer relationship with all customers. In fact, it is difficult to achieve and there is no need to do so. It should be classified and treated differently.

At present, commercial banks generally use the following methods to classify individual customers. The identification of applicant information and loan review have high requirements on the business experience of credit reviewers. In recent years, the consumer finance business of commercial banks has developed rapidly, and it is difficult to train enough loan review experts in a short period of time. 2. With the continuous introduction of business model innovations such as "Internet+Consumer Finance", small and multiple loan applications are becoming more and more common.

### 2.2 The Commercial Bank Customer Profit

According to the customer's contribution to the bank's profit, customers can be divided into gold customers, potential customers and ordinary customers. "Golden customers" generally have cooperated with commercial banks for a certain period of time, have considerable financial assets, good credit records, relatively frequent financial activities, and have established mutual trust and relatively fixed relationships with commercial banks. main source. Usually 80% of the operating income comes from these top customers. The contribution of "potential customers" to commercial

banks is lower than that of "golden customers", but they have the potential to further develop into "golden customers". Banks, like ordinary enterprises, must take into account the calculation of income and cost when studying profit contribution, and assess whether the income is satisfactory under the condition of investing a fixed cost.

However, a bank is also a special enterprise. First of all, all banks operate through accounts as the most basic assessment unit. Each of us can open multiple accounts in the bank, including fixed accounts or current accounts. These accounts Corresponding to a customer's customer number or corresponding to a customer's ID card number, secondly, the carrier of the relationship between the customer and the bank is the banking business. Different, the income generated is also different. Therefore, according to the above characteristics, we must carry out graded research on the bank customer profit contribution according to the type of account. When studying the customer profit contribution of the next level, it is automatically classified into the upper level and becomes a part of its composition, and the last level is the specific Analyze data to operate.

As we all know, most of the funds needed in the bank's asset business come from the bank's liability business. After a bank absorbs deposits, increases investment and attracts foreign capital through various channels, it can use it as its own capital to carry out external loans and maintain normal internal operations of the bank. Therefore, for a commercial bank, the liability business also contributes to its profit, and the contribution should be positive. In order to scientifically measure the profit contribution of liability business and more reasonably divide the profit contribution of asset business and liability business, we introduce the concept of capital transfer pricing when calculating the contribution. The so-called capital transfer pricing refers to the settlement price of products or services provided by each branch or department within a bank.

### 2.3 The Modelling of Bank Customer Profit Contribution Based on Credit Score

The current research has not established an evaluation standard of customer value that can be recognized by most scholars. Most scholars believe that several factors should be considered in establishing the measurement standard of customer value: first, the understanding of the concept and connotation of customer value; second, the macro and micro environment that affects the judgment of customer value; third, the customer is in a process of consumption behavior , in the pre-purchase selection stage, the purchase behavior itself and the post-purchase stage of the perceived value evaluation; the fourth is to study the market perspective of choice. A combination of the above factors can result in a measure of a specific good or service. Considering the large differences in customer selection, customer positioning, and value perception between companies in the commodity market and service market, there must be big differences in measuring the customer contribution of the two types of companies.

Based on the reality of commercial banks, this paper evaluates the contribution of individual customers. With the development of the national economy, the types of bank customers and business types continue to increase, and the needs of the times tend to improve. However, the data related to customer profits between different banks is incomplete, or even some inconsistent dirty data. At the same time, the noise in these data may be very large, resulting in different degrees

of deviation in the data mining process, and even the obtained results do not match the actual results. Therefore, in order to improve the quality of data mining of bank customer profit contribution, we need to perform data preprocessing on the collected source data. The efficiency of data mining process and the quality of data mining analysis can also be improved by performing basic data preprocessing on bank customer profit contribution.

my country's commercial banking business is managed in the form of bank accounts, and every customer handling banking business needs to have at least one account. Enterprises can choose their own banks, and banks can also choose depositors voluntarily. However, an enterprise can only open a basic deposit account at one business institution of a bank, and shall not open a basic deposit account in multiple banking institutions.

### 3. CONCLUSIONS

This paper attempts to draw lessons from the customer profit contribution calculation model of marketing companies and formulate a bank customer profit contribution calculation model according to the cost-benefit accounting method of cost accounting. For bank contribution, the article divides it into three levels: business-level profit contribution, account-level profit contribution, and customer-level profit contribution. For the three levels of contribution, we introduce the interrelationships among them, and summarize the calculation method of each level of contribution. The profit contribution of the business layer is the basis of the bank customer's profit contribution and other profit contributions. As a component of the lowest contribution, it plays a decisive role in the research.

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# Algorithm Based on the Mixing Ratio of Road Asphalt Materials: from the Auxiliary Perspective of Computer Vision Image Recognition

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**Abstract:** This paper uses computer image recognition algorithm to predict the dynamic modulus of asphalt mixture. The main parameters of asphalt mixture porosity, effective asphalt content, asphalt viscosity, load frequency, aggregate sieve mass fraction (and aggregate pass rate on 0.075 mm sieve openings, were established based on gene expression programming algorithm). Asphalt mixture dynamic modulus prediction model. Taking dynamic stability as the evaluation index, comprehensively considering its residual stability, creep rate, friction factor, water seepage coefficient and porosity, etc., to propose a functional asphalt pavement mineral material ratio the best optimization plan. Compare the prediction model with Witczak 1999 model, computer vision image recognition prediction model and artificial neural network model).

**Keywords:** Mixing Ratio, Road Asphalt Materials, Auxiliary, Image Recognition

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## 1. INTRODUCTION

The dynamic modulus of asphalt mixture is one of the important parameters in the design and analysis of asphalt pavement structure [1]. How to determine the dynamic modulus of asphalt mixture has attracted the attention of road workers. At present [2], indoor test methods are mainly used to determine the dynamic modulus of asphalt mixtures, but indoor tests have disadvantages such as complicated sample preparation process [3], expensive test equipment, and time-consuming materials. Some scholars proposed to determine the dynamic modulus of asphalt mixture through virtual test of discrete element method [4], but it is difficult to determine the meso-parameters of virtual test. In recent years, intelligent methods such as neural networks have achieved good results in material performance prediction [5].

Ceylan et al. used neural network methods to predict the dynamic modulus of asphalt mixtures. Go-palakrishnan et al. proposed a support vector machine-based asphalt mixture dynamic modulus prediction model [6]. It is difficult to determine. In recent years, intelligent methods such as neural networks have achieved good results in material performance prediction. Ceylan et al. used neural [7] network methods to predict the dynamic modulus of asphalt mixtures. Go-palakrishnan et al. proposed a support vector machine-based asphalt mixture dynamic modulus [8] prediction model. It is difficult to take into account various performance indicators, especially for functionality [9]. Asphalt pavement meets the demanding requirements of comprehensive performance, and due to the diversity of its performance factors and the interaction of complex conditions, it is necessary to reasonably use scientific test methods for [10] factor analysis and mixture composition design during the design. Because of the leaping type of highway construction [11]. During the development of large-scale construction, there are inevitably various technical problems in the project quality during the large-scale construction period [12]. With the increase of traffic volume, the increase of road age and the shortage of maintenance funds, the existing roads are far from reaching the designed service life in their operational life. At that time, different degrees and scopes of damage occurred [13].

This kind of damage is equivalent to the depreciation of pavement assets if reasonable maintenance measures are not adopted in time. For our [14] province, this kind of asset depreciation will mean the loss of a huge amount of public assets, and after several years of operation, in order to maintain the normal operation of the expressway network, a huge amount of money not lower [15] than the rate of asset loss is needed to extend the expressway every year. The maintenance and repair of highway life, for our province located in the west, will obviously [16] be affected by this in the future economic development. Network-level pavement maintenance decision-making is a multi-factor and multi-attribute decision-making problem [17], involving many factors such as pavement structure type, environment, traffic load, pavement performance decay law, etc. There are even certain contradictions between different factors, especially benefits [18] the contradiction between costs is the most prominent. The matter-element analysis theory developed in recent years uses formal tools to study the laws and methods for solving contradictory problems from a qualitative and quantitative perspective, and has been successfully applied in many fields [19].

This provides a new method for the determination of the network-level pavement maintenance program. Based on the cost-benefit analysis [20] of pavement maintenance, this paper uses matter-element analysis theory to establish a matter-element model to determine the network-level pavement maintenance decision-making [21], and verifies the correctness of the model through engineering practice. Corresponding to the growth trend of expressway mileage, the changes in my country's traffic volume in recent years have also shown a relatively [22] obvious growth trend. The increase in traffic volume and the increase in pavement load make the test of pavement performance more and more severe. In addition, the frequent [23] overloading phenomenon has caused many highways to have some diseases in the early stage, such as oil flooding, rutting, etc., and then affect the performance, service life [24], and transportation efficiency of the road surface can induce some safety accidents in severe cases. Pavement performance represents a function or ability of the pavement. Better pavement performance should not only ensure that the road

surface can guarantee driving safety during its service life, but also provide comfortable services for driving. Therefore, it is very important to people's travel and life. important. In order to improve the performance of the pavement.

## 2. THE PROPOSED METHODOLOGY

### 2.1 The Computer Vision Image Recognition

In pedagogy, the method of evaluating teaching quality refers to the use of theory and technology to evaluate the quality value judgment of education on whether the teaching process and teaching effect can reach a certain level of teaching. Common evaluation teaching methods include fuzzy comprehensive evaluation method and AHP analytic hierarchy process. The above formula as a whole seems to be a model operator with a large value. Although the weight value and the single-factor evaluation result are multiplied, it is impossible to lose any information. The evaluation results and importance have been well reflected, but since the final model is based on the maximum value, the influence of the main factors is highlighted.) The system can carry out various statistics, comparisons and analyses for classes, grades, colleges, etc. It can be displayed in the form of graphs, making the results clear and clear. The system can use the method of Chapter 3 to conduct certain data mining for evaluation, assist managers and decision makers to educate and manage students in a targeted manner, and provide a reliable reference for the adjustment of talent training programs.

It is processed in the teaching quality business process of the data processing process of the teaching quality evaluation system. Usually, the processing logic is generally described by the judgment table or the judgment number in the detailed design process. Employers and recruiting agencies can enter the system as enterprise users, and can check the results of student evaluations, so that users can understand the overall quality of students, and set up corresponding screening conditions according to the specific needs of talents, so as to select the required needs in a targeted manner. talent. The main functions of the administrator include system settings, basic settings, report printing, data import and export, curriculum, teacher evaluation and announcement information management. System settings mainly include functions such as log management, menu settings, role rights management and other functions.

### 2.2 The Road Asphalt Material

Based on the data of the central combination of experimental results, the GA-ANN method is used to establish a model to predict the optimal mineral material ratio of functional asphalt pavement. The result data of the central combination experiment is randomly divided into three groups: calibration set, test set and prediction set. Among them, the calibration set is used to establish the optimization model, and the test set and prediction set are used to check the adaptability and predictive ability of the model. The degree of approximation (Da) is used to select the appropriate number of hidden nodes. According to the principle of the GEP algorithm, the database is divided into two parts at random when establishing the prediction model: the first part is the training group, with 2000 sets of data, accounting for 72.7% of the total data; the second part is the verification group, with 750 sets of data. Accounting for 27.3% of the total data. After repeated training on 2000 sets of data using the GEP algorithm, the chromosome of the best fitness sample is obtained, namely the asphalt mixture dynamic modulus prediction model, and then

the prediction model is placed on the 750 sets of data in the validation group for fitness verification. The GA-ANN method is used to further optimize the mineral material ratio of functional asphalt pavement, and the data of the central combination experiment result is divided into three subsets.

The fitting degree of the GEP algorithm reaches 0.925, which is more accurate than the Witczak 1999 prediction model and the Korean prediction model, but slightly lower than the artificial neural network model.

### 2.3 The Asphalt Mixture Ratio Based on Computer Aided Image Recognition

The 8 influencing factors and the sensitivity analysis results of the dynamic modulus are represented by a histogram, as shown in Figure 5. It can be seen from Figure 5 that the Witczak 1999, AN, GEP prediction model and the measured value of the dynamic modulus have similar correlations to the various influencing factors. Among them, the influencing factors that are positively related to the measured value of the dynamic modulus are aggregate gradation characteristics  $p_{200}$ ,  $p_{34}$ ,  $p_{38}$ ,  $p_4$ , asphalt viscosity and load frequency  $f$ ; negatively correlated influencing factors are effective asphalt content  $w_{\text{eff}}$  and asphalt mixture void ratio  $V_a$ . In the Korean prediction model, the influencing factors that are positively correlated with the measured values of the dynamic modulus are  $p_{200}$ ,  $\eta$ ,  $f$ ; the influencing factors that are negatively correlated are  $w_{\text{eff}}$ ,  $V_a$ ,  $p_{34}$ ,  $p_{38}$ ,  $p_4$ . , Where 2 groups are set as the prediction set, 2 groups are set as the test set, and the other 11 groups are set as the correction set, and the dynamic stability is used as the output data to establish a three-layer feedback neural network model.

The  $R^2$  of the optimized artificial neural network model is 0.9913, which shows that the model has a satisfactory degree of fit. The root mean square error of the test set (RMSET) and the root mean square error of the prediction set (RMSEP) are 0.027 and 0.024, respectively, indicating that the artificial neural network model has good predictive ability. Another typical development node is the development of PMS. It was first used by the Norwegian Highway Agency, represented by the roughness prediction model, and provided a more comprehensive evaluation model, incorporating factors such as pavement structure, climatic conditions, and traffic. Due to the lack of the model itself, it is required to quickly and accurately modify the model when the influencing factors change.

Other related models have been applied and promoted in subsequent practice. The PSI model is also a representative. First of all, it is used in the United States. Innovative indicators such as service level, pavement data and surface conditions have been added to make the evaluation model more realistic and reliable.

## 3. CONCLUSIONS

Compared with other typical prediction models, the prediction accuracy of the computer vision image recognition model is better than the Witczak 1999 prediction model and the South Korean prediction model, and slightly lower than the artificial neural network model. However, the artificial neural network model cannot obtain the explicit expression of the function, and it is impossible to clarify each the relationship between predictive factors and predicted factors. Therefore, the GEP model effectively overcomes the shortcomings of traditional methods such as artificial neural networks while ensuring the prediction accuracy, thereby providing a new and reliable

method for predicting the dynamic modulus of asphalt mixtures.

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# Data Mining APP for Preschool Teachers' Information Literacy Based on Computer-Generated Intelligence Test System

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**Abstract:** In order to meet the needs of smart campus construction and mobile learning, a smart classroom test system based on smart mobile terminals is designed. According to the application characteristics of different user groups of the test system, functional modules for teachers and students are designed. Teachers' information literacy has received more and more attention. As an integral part of educational informatization, preschool education informatization, whether it has good information literacy has become the standard for measuring the group of preschool teachers in the new era. The comprehensive improvement of preschool education teachers' information literacy requires the construction of preschool in the perspective of U-G-S. The long-term improvement mechanism of education teachers' information literacy, from the perspective of data mining, according to the individual's many years of teaching and practical experience, as well as the characteristics of pre-school education teachers' information literacy, the research object is divided into three parts.

**Keywords:** Data Mining APP, Preschool Teachers' Information, Computer-Generated Intelligence

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## 1. INTRODUCTION

The Outline of the National Medium- and Long-Term Education Reform and Development Plan (2010-2020) proposes to speed up the process of education informatization, focus on strengthening the information infrastructure in rural schools, and continue to promote distance education in rural schools, so that teachers and students in rural and remote areas can enjoy high-quality educational resources [1]. With the help of the era of education informatization 2.0, the development of preschool education informatization requires not only the construction of a high-quality informatization digital big resource data platform for preschool education, but also the strengthening of preschool education informatization software and hardware supporting facilities. The rapid development of intelligent mobile terminal equipment has become popular [2].

At present, mobile learning has been integrated into smart education, which is an important development trend of online learning through the Internet. Preschool education is the cornerstone of the entire education building [3], and its informatization plays a powerful role in promoting the entire education informatization. Education informatization is a systematic project. With a good software and hardware environment, teachers have high information literacy, which is of great significance to the advancement of educational informatization [4].

Strengthen the application of information technology, improve the level of teachers' application of information technology, update teaching concepts, improve teaching methods, and improve teaching effects [5]. In 2010, Hu Jintao emphasized at the National Education Work Conference that education modernization should be driven by education informatization, and the construction of educational information infrastructure should be accelerated [6]. The more important task is to comprehensively improve the information literacy of preschool education teachers and promote preschool education teachers to actively keep up [7]. The pace of the information age, adapting to and effectively using

artificial intelligence technology to actively carry out various educational and teaching activities to cultivate students with excellent professional ability and rapid thinking ability, not only requires subject professional knowledge [8].

On the basis of theory and practice, it is also necessary to form one's own physical education wisdom through continuous accumulation. Physical education teachers should promote their transformation from traditional teaching to intelligent teachers in order to serve and teach better [9]. While "Internet +" brings great opportunities to education, it also brings great challenges. It can be said to be a double-edged sword. What we need to do is to promote strengths and avoid weaknesses, seek advantages and avoid disadvantages, and try to play its positive role as much as possible and reduce its negative role [10], to ensure that by 2020, an education informatization system covering all types of schools at all levels in urban and rural areas will be basically built, and promote the popularization and sharing of high-quality educational resources [11].

[12] Preschool teachers in the new era are not only the enlighteners of children's intelligence and emotions, but also the guides of children's cultivation on the road of informatization. Improve the informatization level of preschool education, focus on cultivating children's early information literacy, and prepare children for the future. Be well prepared to face the challenges of the AI era. College students are highly dependent on mobile phones and have a common demand for mobile learning [13].

With the construction of digital campuses, teachers' management of students should also be transformed from traditional methods to online intelligence. For information literacy, the popular understanding is the search, processing, and processing of information [14], combined with one's own knowledge structure, internalizing the information, and putting forward one's own views. This kind of literacy and ability is particularly important in the Internet age, and it is also an important quality for kindergarten teachers to develop towards professionalism [15]. The research on the teaching

wisdom of physical education teachers under the background of "Internet +" can be divided into theoretical significance and practical significance [16].

The theoretical significance is that, first, it can enrich the related theories of physical education teaching wisdom, so as to better guide practice; second, it is conducive to the development and construction of physical education teachers' professional concepts [17]. They use mobile phones to watch videos, send WeChat, and swipe Weibo, etc., but it is undeniable that students can also search for learning materials through mobile phones, use some educational APPs to learn, record video, take pictures, etc. Smartphones bring great challenges to traditional classrooms, but also bring new ideas to traditional classrooms [18].

## 2. THE PROPOSED METHODOLOGY

### 2.1 The Computer Generated Intelligence Test System

Most of the IT teachers talked about the cultural identity between the development of individuals and schools. The individual value orientation of teachers is consistent with the common value orientation of the school. It is relatively low, and the level of configuration is relatively basic, especially in private preschool education institutions, and some preschool education teachers have not even heard of smart classrooms.

The development purpose of the digital campus. The smart classroom test system (referred to as the test system) is to optimize teachers' attendance and assessment management methods for students, facilitate students' self-management of online learning, and make teachers' teaching management and students' learning more efficient and convenient. Data mining has been successfully applied in some fields, and its application in high-level education management has been paid more and more attention, not only in normal colleges and universities, but also in many large companies. The analysis method combs and analyzes the collected literature, summarizes the connotation, characteristics and influencing factors of physical education teachers' teaching wisdom. With the development of information technology and the continuous emergence of massive data, human beings have entered the era of big data.

Big data has five basic characteristics: large capacity, which refers to the quantity of data; variety, which refers to the type of data; high speed, which refers to the speed of data acquisition; and strong authenticity, which refers to the quality of data. The Songjiang District Education Bureau organized a ladder project for teacher development. The development is divided into three levels: rookies in the teaching field, famous teachers in disciplines, and chief teachers. Among them, the proportion of famous teachers in information technology disciplines has increased year by year. Various schools have also carried out similar self-training projects.

### 2.2 The Information Literacy of Preschool Teachers

It is difficult to create a realistic situation when teaching in an intuitive way such as playing games. Multimedia technology can process graphics, text, sound, and images from all angles to integrate them into one, with vivid images, strong information stimulation and cross-time and space. Features. Information literacy of preschool teachers. With the development of information technology in the information

society and the in-depth advancement of education informatization, the life and work of preschool teachers.

Learning is under the informatization atmosphere of big data, mobile Internet, and artificial intelligence. The information awareness and attitude of preschool teachers and the level of information ethics have been significantly improved. Course management involves grades, tests, and course resources. The performance assessment management is divided into the assessment of the usual grades and the final grades, and the test management is divided into the management of the usual tests and the final test. In the field of preschool education management, data mining is still a brand-new topic. This paper will use the data mining method to analyze the information literacy of the research object - kindergarten teachers in the process of using information technology.

"Internet + education" is different from the early education informatization. By grafting Internet channels in traditional education, education informatization is only a transfer of knowledge, and the form of education has not changed. "There are essential differences, but education informatization has promoted the emergence and development of "Internet + education" to a certain extent. After receiving the pre-class preview materials pushed by the teacher, students can conduct independent learning according to their own time conditions and complete the preview tasks within the specified time. The pre-class preview of the smart classroom is controllable, whether the students have preview.

### 2.3 The Data Mining APP for Preschool Teachers' Information Literacy

As a result, many children do not want to go to kindergarten. Piaget believes that "children are active people, and what they teach must be able to arouse the child's interest and meet his needs in order to effectively promote his development". Construct a community for the improvement of information literacy education for preschool teachers. The U-G-S trinity teacher education model emphasizes that in the process of cooperation, local governments, universities, and preschool education institutions have the same goals, common responsibilities, benefit sharing, and resource optimization on student pages. Responsive access for smart mobile end devices.

HTML5, CSS3, JavaScript and jQuery technologies are applied in page content presentation and interactive effect design. Through the research and analysis of the above three aspects, we hope to find out the subjective and objective factors that affect the improvement of teachers' information literacy, so as to guide the formulation of teachers' information technology training programs, and also help preschool teachers to formulate pre-service teaching plans and Adjustment of training goals. The system application is divided into two parts: student front-end access and teacher background management.

Content accessed by students, including homepage, coursework, login, online testing, grade inquiries, assignment submissions, and more. Back-office management of teachers, on the one hand, because the kindergarten managers think that it is not necessary to change the existing teaching mode and add information technology equipment, on the other hand, due to the limited funds, most kindergartens have more than enough resources, and there is no way to purchase teaching equipment. The investment, resulting in softness between kindergartens, is only provided for teachers to realize the management of students, courses, and tests, etc. In terms of



technical implementation, the access of students is based on mobile devices.

### 3. CONCLUSIONS

It is a new goal of early childhood education in the information society to lay the foundation for cultivating modern information-based talents comprehensively and efficiently with information-based education. Among them, the cultivation and improvement of preschool teachers' information literacy has become an important content. The student terminal is developed into a responsive web page, which can be accessed directly through the browser without installation, does not occupy equipment space, and is convenient to use. The realization of each functional module adopts the currently popular Bootstrap framework, Layup framework, HTML5, Css3, JavaScript and jQuery and other technologies to design data mining models, use data mining tools, and use association rules and clustering methods for different mining problems.

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# Auxiliary Training System for Preschool Education in Colleges and Universities Based on Feedback Data Mining: From the Perspective of MOOC

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**Abstract:** In this paper, a frequently closed moving trajectory pattern is defined in view of the large scale and redundant information of the frequent pattern of moving trajectory. Based on the classical closed sequential pattern mining algorithm, a frequent closed pattern suitable for moving trajectory data is proposed. Reflecting on the current teaching situation of the course, on the premise of further clarifying the training objectives and increasing the degree of emphasis, the "MOOC" and traditional teaching, the credit recognition of "MOOC", the language of "MOOC", and the development strategy of "MOOC" Research progress etc. Adapt to the actual needs of kindergarten music education, set up courses reasonably, and improve teaching content. The system can be used by teachers, students, and parents for pre-school education, and establish a simple interactive platform for teachers, students, and parents. Safe and reliable and other characteristics, it is worth promoting and using.

**Keywords:** Auxiliary Teaching System, Preschool Education, Feedback Data Mining, MOOC

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## 1. INTRODUCTION

With the continuous development of mobile communication and positioning technology, it is possible to collect, transmit and store moving trajectory data by carrying portable devices. Use data mining, machine learning and other related technologies to mine and analyze the collected movement trajectory data, and then find valuable information and knowledge. [1].

The kindergarten teaching ability of highly educated preschool education graduates is not optimistic. Due to practical activities, students are motivated to participate in teaching, and students are guided to study actively, so that the teaching courses of preschool education majors in this college are also carried out in accordance with these five areas. Divide. Students fully realize the importance of practical application of teaching skills in classroom teaching [2].

With the rapid development of preschool education in higher education, college students have the ability to learn. More calls are made to strengthen the quality education of preschool educators [3]. As various colleges and universities in my country that train future preschool educators, we must carefully study what kind of professional quality students majoring in preschool education should have and should explore how to cultivate the teaching ability of students majoring more effectively in preschool education [4]. The current situation and trend of students' learning enthusiasm and efficiency gradually decrease, the main factors restricting students' learning enthusiasm are obtained, and strategies to promote students' rapid improvement of learning efficiency are explored.

The teaching content strives to be reasonable. The theoretical knowledge of pre-specialty majors has been significantly improved compared with the past [5]. At the same time, pre-school education majors in pre-school education majors should strengthen the training of preschool teachers and pay attention to education points. Practicing skills and professional skills. With the continuous development of mobile communication and positioning technology [6], it is possible to collect, transmit and store moving trajectory data

by carrying portable devices. Use data mining, machine learning and other related technologies to mine and analyze the collected movement trajectory data, and then find valuable information and knowledge [7].

Using the distance and orientation of the mobile phone relative to the operator's base station to obtain relative position information has also become an important way to obtain movement trajectory data [8]. Although this method of obtaining location data involves the leakage of location privacy data of mobile network users. In addition to the above two mainstream methods. In addition, in terms of application, the discovered value information can provide decision-making basis for location-based services [9], urban public management, mobile social networks, precision advertising marketing and other fields. In addition, in terms of applications, the discovered value information can provide decision-making basis for the fields of location-based services, urban public management, mobile social networks, and precision advertising and marketing [10].

Why is there such a big gap between the preschool education talents we cultivate and the needs of the society? The solid theoretical foundation of preschool education given to students by higher education has not been well transformed into effective teaching behavior in the actual teaching work of kindergartens Woolen cloth. [11]

In my country, the training of students majoring in preschool education is mainly concentrated in normal colleges and universities at all levels [12]. At present, many college levels such as secondary vocational preschool teachers, preschool teachers' colleges, and normal universities have been formed. The professional structure has also formed by Secondary schools and colleges [13]. Moreover, the expensive price also makes it difficult for many products to be applied to more schools. Therefore, it is necessary to design a set of intelligent preschool education auxiliary management system from the perspective of improving preschool education and teaching management, improving the safety factor of children inside and outside the school, and helping teachers in teaching [14].

In addition, in terms of applications, the discovered value information can provide decision-making basis for the fields of location-based services, urban public management [15], mobile social networks, and precision advertising and marketing. The express delivery function in the catering or logistics APP (such as: Maidu, Ele.me), the outdoor movement track recording function in the sports and health APP (such as: Joy Run, keep), the positioning in the map APP Navigation function [16].

## 2. THE PROPOSED METHODOLOGY

### 2.1 The Feedback Data Mining

However, due to the time-space cross-evolution relationship and background knowledge constraints (urban road network, regional function positioning, etc.) contained in the moving trajectory data, and the behavioral characteristics of the movers are implied behind the moving trajectory, and secondly, the current The scale of trajectory data is huge, and the processing efficiency of the built-in algorithm in the framework must be considered in order to solve it in real scenarios. Finally, it should be noted that existing algorithms for adjoint behavior patterns mainly rely on semi-supervised methods to handle critical parts.

The movement trajectory data can be represented in the form of a quadruple as shown below:  $\langle X_i, Y_i, I_t, O_i \rangle$ , where  $\langle X_i, Y_i \rangle$  represents the spatial position information of the moving object, and it represents the time information corresponding to the spatial position information, related research will still use this idea of time slicing to find travel partners and even group behavior patterns. However, because of the difficulty of collecting complete data and the sparseness of data, the use of inappropriate time slices makes clustering trajectory data face some problems.

As time-continuous behavioral sequence data, the frequent pattern set is prone to the overlapping and redundancy of multiple mining patterns, and the prevalence of similar mobile behavioral characteristics in the same community group in the real society highlights to a certain extent. This problem. One-person-multiple-machine (MCMP) behavior mode is defined as follows: a situation in which the moving trajectories containing multiple mobile phones have significant clustering or even highly overlapping trajectory characteristics in a very short time, and the overall duration of this situation is relatively long. Proposed The Closet raj algorithm is a frequent closed pattern mining algorithm suitable for moving trajectory data, which minimizes the size of the patterns mined when mining patterns on moving trajectory data. The overall process of MCMP pattern discovery is shown, and it can be seen that in the trajectory clustering There are obvious differences in the stages, and the whole process can be regarded as three main stages, among which the filtering and merging of pseudo-adjoint can be regarded as a whole stage.

### 2.2 The Preschool Education Teaching Auxiliary Teaching System in Colleges and Universities

The design, language, development strategy, etc. have been investigated and researched, which more comprehensively reflects the latest development of "MOOC" in EU universities, and undoubtedly has great reference significance for the construction of "MOOC" in Chinese universities. The second is the lack of humanistic care of "presence". Cultural centers generally have insufficient understanding of MOOCs. They only regard MOOCs as learning videos published on their own websites, and do not regard MOOCs as a teaching

process between teachers and students and between students. Scholars such as Zhong Boc hang, a professor at South China Normal University, have pointed out that the mobile behavior pattern characteristics of specific users can be obtained at the individual level.

For example, starting from home in the morning, taking public transport to reach the unit through a fixed route, and going home along the same route in the afternoon or going out to eat. Theoretical discussion on the characteristics and laws of music learning. As far as the author understands, at present in many colleges and universities, schools and teachers still use the name teaching method by convention. Therefore, for the convenience of expression, this article still uses the name teaching method. The digital teaching system is a network management system that integrates teaching management, student learning, examination, evaluation, and management. It can effectively organize and process various resources and maximize the utilization rate of various resources. Android is an open-source mobile operating system based on Linux platform developed by Google, which includes operating system, user interface and application programs.

The client is developed using Android JAVA, and txt text files are used for data storage. Under the interactive influence of the post-epidemic era and the post-MOOC era, the development of MOOCs has shown the following two trends: First, the online and offline hybrid education model has become the mainstream. In the future, the online and offline boundaries of MOOCs will be further blurred, "; and at the group level, the common behavior patterns of large-scale users can be obtained, and on this basis, the flow rules of crowds in different areas of the city can be studied., the choice of transportation routes for citizens to travel, etc. At present, the talents trained by the preschool education major in colleges and universities reflect the characteristics of high theoretical level and low teaching ability, which shows that for a long time we have paid more attention to the teaching of preschool education theory courses and neglected teaching.

### 2.3 The Data Mining of Preschool Education Feedback Based on MOOC Perspective

The "virtuality" of online teaching has triggered the dissolution and reconstruction of the traditional teacher-student relationship. Therefore, in order for teachers to overcome the shortcomings of "gap" teaching, it is necessary to increase the influence of teachers and teaching assistants on MOOCs. Therefore, through the mobile frequent pattern mining, how to get the most comprehensive information in the final mobile pattern set, and the smallest data scale of the mobile pattern set is a problem that needs to be considered. Even far beyond the requirements stipulated in the pre-school professional music syllabus, the ability to improvise accompaniment is very different, and even a simple children's song that has just been acquired cannot be played well, let alone. The accompaniment will be transposed.

In the future teaching of relevant courses, the application of modern media to disseminate digital teaching resources that are conducive to the cultivation of students' professional emotions, such as pictures and videos of children's teaching, special reports by outstanding preschool educators, etc. Extract the key information as the file name of the saved file. The names of files saved with different key information are different, and no additional operations are required when saving. When using it, you only need to know the name of the student, and you can check all the location information and

time of the student in the school. Integrate multi-source heterogeneous data, conduct comprehensive information aggregation, and map bundled information such as real-name information to specific users, so as to build a relationship network between users or a relationship network between users and multiple devices.

Form user portraits of specific groups; Huizhou Cultural Center has built a MOOC teaching field of "online video courses + WeChat tutoring group" and created a "sense of presence" similar to the physical classroom through the "five-step MOOC method". In the first step, the Cultural Center holds a class opening ceremony in the MOOC WeChat group. It shows the basic process of frequent closed pattern mining: Merge reduction for speed comparison, linear interpolation of missing data, and Kalman filter removal of noisy data, etc.

### 3. CONCLUSIONS

Under the new development trend of MOOCs, small and medium-sized cultural centers should change the thinking of "moving courses", do a good job in the "second half article" of the MOOCs, give full play to the advantages of being flexible and close to the public, and make full use of the advantages of being flexible and close to the public. Intensive cultivation". The cultivation of teaching skills of preschool education students is related to their success in early childhood education work in the future. Under the situation that the degree of educational informatization is becoming more and more perfect, various colleges and institutions that train preschool education students should actively carry out the application and research of using the digital teaching system to cultivate the teaching skills of preschool students. Using the depth-first search method and the frequent closed pattern mining algorithm based on classical sequence data, the Closet raj algorithm is proposed for the above problems.

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# Application of Intelligent Data Collection and Meta-Analysis Modeling in Internet Online Guiding under the Background of Sharing Economy

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**Abstract:** The emergence of Internet technology has also brought about the development model of sharing economy, and with the rapid development of modern society, people gradually accept and rely on the Internet business model under the sharing economy. This article mainly analyzes the online intelligent education in the context of the sharing economy. The platform, according to the online learning behavior model, selects quantitative parameters and metadata analysis of behavior characteristics according to the Blackboard online course data, referring to the learner specification and the object metadata specification.

**Keywords:** Intelligent Data Collection, Meta-Analysis Modeling, Online Education, Sharing Economy

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## 1. INTRODUCTION

Into the 21st century. The function of education to promote social development and human development is becoming more and more obvious [1]. Governments of various countries have invested considerable human, material and financial resources. and develop education in various ways. especially higher education in the concept of establishing lifelong learning and building a learning society has attracted attention from all walks of life [2]. It has become a new round of educational pursuit of people. in this context. The Chinese government has accelerated the construction of information technology infrastructure [3], educational resources and distance education platforms, and ordinary colleges and universities have carried out distance education based on information technology [4]. All sectors of society represented by industry-TJn have increased their investment in distance education. In order to promote the rapid development of modern distance education in our country. Online learning is a way of increasing knowledge and skills through ICT [5].

It pays attention to the learning process and breaks the limitations of time and space. Learners can learn according to their personal learning habits and learning methods [6], and truly realize autonomous learning and personalized learning. The online learning platform provides learners with rich and diverse learning resources, flexible course arrangements and multi-dimensional assessment methods [7]. The Internet business model developed under the background of sharing economy belongs to a new business development model. By combining modern Internet information technology [8], various Internet technology platforms are formed. Through unified platform control and management, people can Paid and fair enjoyment of social resources, such as manpower, material resources, etc. [9], in which people pay and gain in different ways, thereby driving people to enjoy economic development together [10]. The Internet business model under the sharing economy, that is, through a unified Internet information technology platform, transfers the right to use one's personal items to others for a fee in a short period of time, so that it will not cause the item resources to be idle, and at the same time [11], it can be used for Others provide services and convenience. In fact, in the process of social development, the sharing economy has already shown signs of

development [12]. For example, industries such as house leasing and truck leasing all share idle self-resources for a fee. By relying on the innovation of modern Internet information technology in the [13] development process of the sharing economy, the emergence of Internet platforms has made the integration and sharing of resources more efficient, so the sharing economy [14] has gradually attracted more attention from more groups. The online platform provides a supportive environment for the development of online education and the online learning of learners [15].

Currently well-known online teaching platforms include MOOC platform, SPOC platform [16], mobile digital library and blended learning platform Blackboard and Moodle platform. Educational research is [17] a careful and systematic investigation to discover or establish valid facts and valuable relationships between [18] facts in education (Charles, 1998). A very important type of research in educational research, correlation research, is to discover or establish valuable relationships between facts [19]. The purpose of a correlation study is to find a correlation between two or more variables. In the field of education, researchers try to find out the elements of teaching that are related [20] to each other through correlation research, and then explain, predict or intervene in teaching [21].

Online learning refers to the way of content dissemination and rapid learning through computer Internet or through mobile wireless network [22]. This learning method can not only satisfy its own learning needs, but also collect data related to learning behavior [23]. These data can be extracted from the online learning platform, and then the data can be mined more deeply, and then the online learning behavior can be studied through the mined information [24]. However, the data generated in the process of online learning is huge and messy, and it also contains a lot of unstructured information. It is not easy to find its hidden knowledge and laws by using simple statistical analysis methods, and these data actually come from educational big data. Therefore, we need to study in a more precise and sophisticated way. Data mining technology can analyze large amounts of data and extract information and knowledge hidden in it that people do not know beforehand and are useful for decision-making. Data mining technology is the technology we have to choose.

## 2. THE PROPOSED METHODOLOGY

### 2.1 The Sharing Economy

Although the development of the sharing economy model does not have a long history, it has quickly penetrated into major cities in a short period of time and developed in vertical fields. The development of the Internet sharing economy is mainly based on the development of modern Internet information technology and the temporary idle situation caused by excess products in life and work. Under the combined effect of several factors, the Internet business model under the background of the sharing economy has rapidly become a new way of life for people.

People can almost all be exposed to the changes brought about by the sharing economy in their life and work, such as real estate, travel, education, and crowdfunding. People educate on a unified Internet platform, and their identities are more equal. There is a unified Internet platform. Constraints, people's transactions are more secure and convenient. At present, the direction of my country's Internet business innovation and development mainly includes several different aspects such as accommodation, transportation, and logistics. In the development process of the accommodation sharing industry, the main thing is that the owner of the house displays the relevant information that he can provide the tenant with the accommodation on the unified Internet technology platform, and then when the customer logs in to the corresponding platform and sees the information, and completed the rental reservation of the corresponding house. In the process of accommodation sharing transaction, the platform will charge both parties with the tenant and the owner. For each successful reservation order, the platform will charge the tenant 6%-12% fee, and the owner will charge 3% transaction fee. . Similar platforms in my country include Ant Short Rent, Small Rent Short Rent and other platforms.

Tujia is also one of the unified platforms. Learning analytics has gradually become independent from the field of educational data mining, integrating technical methods including learning science, statistics, computer science, information science, sociology and other disciplines to form an independent emerging field. In 2011, LAK made a more authoritative definition of learning analytics, that is, "learning analytics is the measurement, collection, analysis and reporting of data on learners and their contexts for the purpose of understanding and optimizing learning and the environment in which it occurs. NMC believes that learning analytics is the process of interpreting the vast amounts of data generated and collected by students for the purpose of assessing academic achievement, predicting future performance, and identifying potential problems.

### 2.2 The Internet Online Education

While paying attention to hardware investment, the state pays more attention to software construction. Through independent research, cooperation and other methods, systematic modern distance education resources have been developed in a planned, organized and high-quality manner; the existing available resources have been digitized, multimedia and interactively transformed to meet the needs of online teachers. To meet the needs of teaching and students' learning; introduce the world's advanced teaching courseware development platform, and develop modern distance education resources in various ways and means. Due to the support of national policies, material and technology, and the gradual attention of all sectors of society, modern distance education in my country has developed rapidly. This research

obtains the original data to be studied through the online course logs in the Blackboard platform. Export raw data through the Course Reports, Course Tools, and Grade Center modules in online courses.

The course report exports: all user activity in the content area, a comprehensive summary of user activity, user activity in forums, user activity in groups, and how long students have been online. The data obtained by the course tool include: the number of blogs published, the number of logs, the number of posts, and the number of replies. The data obtained by the score center include: complete score center, completion of each test, statistics of each test, historical score records of each test, column statistics of each test, attempts of each test, homework submission, and questionnaire survey. With the proposal of a large number of teaching theories and the application of emerging technologies in distance education teaching, the teaching elements in distance education are becoming more and more diversified and complicated. Compared with traditional education, distance education is a more complex education system. The mutual connection and interaction between various elements play a direct or indirect restrictive role on the educational goals in the field of distance education. Understanding the relationship between these elements and online teaching and the correlation between each element provides the basis and possibility for researchers and practitioners in the field of distance education to discover laws, explain phenomena, design interventions, and improve teaching.

First, pilot schools. The rapid development of modern distance education in our country is first reflected in the pilot universities starting to hold distance education. 1998. The Ministry of Education approved 4 pilot colleges and universities, allowing them to establish modern distance education based on two-way interactive satellite TV and computer networks: invite famous teachers and professors to teach through the Internet, students can learn online and obtain higher education qualification certificates. The purpose is to expand the scale of higher education and meet the needs of society for higher education.

### 2.3 The Intelligent Data Collection and Meta-Analysis of Online Education

With the vigorous development of modern distance education, we must pay attention to the construction of teaching resources. On the one hand, despite the smooth implementation of the "modern distance education project". It provides a basic guarantee for the all-round development of distance education in my country. However, there is still room for improvement in the construction of infrastructure and hardware. Due to geographical differences, the network bandwidth in some places is limited, and real-time, synchronous transmission of audio, video, and text cannot be achieved. There are also some pilot institutions whose facilities are underutilized. cause waste of resources. on the other hand. Software and hardware construction is not synchronized.

Software construction is often neglected when paying attention to hardware construction. After obtaining the original data, the course report data exported from the BB platform is aggregated into a table through Excel and SPSS, the relevant variables are calculated and summarized, and finally imported into the SPSS software for further statistical work, and the data variables are standardized. . The analysis of the themes of the article is based on the 20 types of research topics in the distance education field summarized by

Zhang Weiyuan (1999). However, since the correlation research is an empirical study, the main focus is on the micro-teaching level in the distance education field, and its research content will not cover the Therefore, in the statistical process, the researchers deleted and modified the research topics according to the actual coding situation, and finally determined 13 traditional research fields and 1 emerging research field.

The 13 traditional research areas are: learner characteristics, interaction and feedback, application of technology and media in education, instructional design and curriculum development, student support services, and learning materials design and development. Learner groups conduct online learning behavior analysis with different dynamic characteristics and classify such groups. Mainly through the collaborative filtering recommendation algorithm, the learners with similar static characteristics are screened according to the static characteristics of the learners, such as gender, age, education background, and academic major, and the total number of participants is grouped.

### 3. CONCLUSIONS

The unified authentication platform based on JA-SIG CAS introduced in this paper starts from unified user authentication management and application system integration, and aims to provide a complete multi-site unified authentication solution. The platform can provide unified and reliable user authentication and user management functions for multiple Web application systems in large organizations. It provides convenience for system end users, and provides cross-platform, multi-language support and easy-to-implement integration solutions for application system developers. The next step of the research is to optimize the performance of the CAS.

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# The Application Optimization of Artificial Intelligence in the Physical Layer of the Computer Network Technology in The Era of Big Data

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**Abstract:**Based on the background of the information age, with the continuous development of computer technology and information network technology, artificial intelligence has also made rapid progress in the era of big data and is closely related to people's daily lives. Artificial intelligence gradually enters people's daily work and life. Therefore, it is very necessary to analyze the application value of artificial intelligence in computer network technology based on the era of big data. The paper discusses the application value of artificial intelligence in computer network technology in the era of big data, and mainly focuses on the related applications of data mining technology, intrusion detection technology and firewall technology, hoping to bring certain reference up to 7.8% and reference to relevant professionals.

**Keywords:** Artificial Intelligence, Physical Layer, Computer Network, Big Data

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## 1. INTRODUCTION

Artificial intelligence is a product built on the basis of computer technology and communication technology. In the era of big data, information processing has shown an explosive development model. The application of artificial intelligence and computer technology to computer networks can effectively improve the efficiency of various information processing. To a certain extent, it can solve the complexity and stability problems encountered in the process of computer information processing, and then better promote the development of modern society in the era of big data. For example, in computer network security management, artificial intelligence technology can be used to input "firewall" instructions on the interface to achieve interception, interference, and shielding of bad information, thereby ensuring the security of the entire network system [1-6].

In the current era, computer network technology continues to develop. Communication technology and network technology have not only increased the productivity of society, but also changed people's lives to a large extent and improved people's living standards. Artificial intelligence is the direction for the development of computer information technology in the future. With this technology, companies can improve their management level, increase the speed of development, and reduce labor costs. In addition, artificial intelligence can also be applied to agriculture, industry and other industries to promote the reform of production methods in related industries. Artificial intelligence technology can be applied to computer network technology to strengthen the security management of computer networks and promote data processing and analysis. It is an indispensable and important part of the future development of computer network technology. The development of artificial intelligence requires the support of computer technology and network technology. The process of artificial intelligence technology needs to use virtual technology to allow the system to continuously simulate people's thinking styles and behaviors. Artificial intelligence technology can only be completed when a certain amount is reached [7-14].

Artificial intelligence technology is a very complex technology. It contains a lot of complex content, and it has similarities with many sciences and technologies, such as linguistics, psychology, computer science, etc. The embodiment of intelligence requires a variety of technologies. Support. Therefore, the development of artificial intelligence technology is to allow artificial intelligence to replace people to complete more complex operations, while still achieving the purpose of saving corporate human resource costs and improving work results. The use of computer technology to imitate human behavior and thinking is called artificial intelligence. Artificial intelligence, technology covers a wide range of content, and is highly innovative and challenging. Its development is related to various disciplines including information and computing science, linguistics, mathematics, psychology, etc. The development goal of artificial intelligence is to use computer technology to replace dangerous or complex tasks that should be manually operated by artificial intelligence machines, so as to save labor, reduce accident hazards, and improve work efficiency and work quality. There are various forms of development of artificial intelligence [15-21]

First, artificial intelligence can help to improve some more complex problems or problems that cannot be solved at present. If a correct model cannot be obtained by computer calculations, artificial intelligence can be used to solve the problem. Effectively solve the problem and use artificial intelligence mode to continuously improve the quality of network usage in response to ambiguous problems and content. Second, artificial intelligence can complicate simple things or knowledge and obtain advanced programs and data that people want, thereby saving implementation and improving work efficiency. With the substantial improvement of people's living and production standards, higher demands are placed on science and technology. In recent years, the convenience and intelligence of artificial intelligence has been widely used in all walks of life. People have also attached great importance to artificial intelligence, which has extended its development path and has more technical personnel. It has also joined the exploration and development of artificial intelligence technology one after another, hoping that artificial intelligence technology can be improved in various fields. On

this basis, computer network technology has matured, and the application of artificial intelligence technology can improve the level of computer technology [22-23].

## 2. THE PROPOSED METHODOLOGY

### 2.1 The Physical layer of Computer Network Technology

The combination of computer hardware and software can make the firewall technology work and build a complete protective armor for the safe operation of the computer. The application of firewall technology is aimed at the safety of the entire computer network, greatly reducing the unstable factors caused by illegal intrusion from the outside world, and ensuring the safety of the computer. Especially in the current development background of the big data era, the advantages of firewall technology are more obvious. Preventing computers from being illegally invaded is the most important effect of firewall technology.

At present, people receive many spam emails and short messages every day, and some emails and short messages also carry harmful viruses. Once these spam and short messages are clicked on, it will cause virus intrusion and leak the original private information in the computer. Therefore, artificial intelligence technology is needed to help people identify information, scan emails for unsafe factors, and eliminate them immediately to prevent security accidents. For the hierarchical structure of computer networks, there are two main types: OSI's 7-layer reference model, which divides the computer network into 7 layers: physical layer, link layer, network layer, transport layer, session layer, presentation layer and Application layer, OSI model believes that these 7 layers can realize the basic functions of the computer network relatively independently, and at the same time, each layer can communicate with the upper and lower layers; the TCP/IP reference model, the formation of the TCP/IP reference model is mainly due to TCP/IP is a more commonly used and relatively mature network protocol in computer networks. Although the computer network layered by TCP/IP is divided according to the functions of the computer network, it is more simplified than the OSI reference model. Including: physical layer, data link layer, network layer, transport layer and application layer these five layers. From the above analysis and discussion, we can see that in the OSI 7-layer computer network reference model, the physical layer belongs to the first and lowest layer of the network, and is usually one of the most frequent layers of network failures. In this layer, the relevant interface function characteristics are defined, which are mainly reflected in the following four aspects: mechanical characteristics. That is, the size, shape, arrangement, etc. of an interface component are determined, so that the interfaces can better cooperate and cooperate to serve the upper layer; electrical characteristics.

### 2.2 The Application of Artificial Intelligence in Computer Network Technology

In the process of computer network security management, artificial intelligence technology is used to construct security measures, so that it can detect and screen confidence data through probability calculation, data statistics, memory recognition and artificial intelligence decision-making. In this way, it can further ensure that a large amount of calculation information is simplified during the matching check process, and promote the improvement of the recognition ability of network behavior characteristic values.

This kind of access can ensure more efficient control of data access to the network system, avoiding harmful harm to the network and threatening users with harmful information. The artificial intelligence security system can prevent the derivation and spread of viruses, prevent hackers and criminals from attacking computers, and can also impose management and monitoring on data information in the local area network, so as to ensure that the computer can be reduced if it is infected with a virus or a Trojan horse. Speed of spread and spread. I believe most people have already understood that the problem of hacker attacks is a common security problem in the operation of computer network systems. The emergence of this problem can easily leak user information, and lead to the existence of security risks, which can also cause financial losses in serious cases. Faced with this problem, relevant staff should actively introduce artificial intelligence into computer network security management technology to fully demonstrate the effective value of artificial intelligence. Specifically, the establishment of the database can be completed based on the reasoning mechanism of the computer. At the same time, the computer coding should be improved. In this way, the emergence of hacker attacks can be effectively avoided, and this can also enhance the data. The degree of information security has strengthened the security performance of the computer network system. Not only that, workers should also use artificial intelligence to identify input patterns of variation and noise, ensure that artificial intelligence can be effectively applied in computer systems, and promote the improvement of artificial intelligence work efficiency.

Online education has been widely recognized by virtue of its high utilization rate of learning resources, fierce teaching methods, and scientific teaching management. However, with the continuous promotion of online education, there has been a serious homogenization trend. Therefore, here we advocate a classroom teaching design that integrates lines, lines, lines, and thousands. Soldiers can break the boundaries of time and space in college teaching, and can combine the holistic and fragmented de-polarization of theory.

### 2.3 The Computing Network Optimization in the Era of Big Data

The computer network can exchange a large amount of data in real time, and given its unique dynamic characteristics of rapid transmission of data and information, the system can be quickly upgraded through artificial intelligence, strengthen the flexibility of the system during operation, and ensure the stability of the computer network. At the same time, it can analyze and process uncertain data information, which can promote the safety and efficiency of network operation. Adding artificial intelligence technology to the computer network can enhance the understanding of unknown information after the fuzzy logic processing is completed, and accelerate the rapid development of network supervision, network management and computers.

On this basis, the continuous improvement of network management mechanisms can also be achieved. While promoting the development of artificial intelligence in my country, the rapid development of artificial intelligence can also be achieved. Mass data information is the most distinctive feature of the big data era, and these data information has a high degree of complexity. Faced with this situation, the relevant staff should apply artificial intelligence in the computer data mining system, which can be specifically carried out from two aspects: First, the staff should strictly follow the relevant regulations when conducting data mining

work, and at the same time, When carrying out in-depth mining work, you should also make full use of related equipment to effectively ensure the accuracy of data information; but in daily life, the staff should actively learn the rules of computer intrusion to fully understand The system mode of invading the computer. At the same time, in this process, the staff needs to record the relevant data to avoid missing the relevant intrusion data information. In this way, the next time the external computer intrusion system is identified, the relevant work can be carried out more smoothly, and this also makes the operation of the high data mining system safe. The application of artificial intelligence in computer network security is embodied in firewalls.

From the actual situation of development, the security check efficiency of smart firewalls is higher than that of traditional firewalls, and it can handle the denial of service. Not only that, the firewall identification technology based on artificial intelligence can better distinguish and process the corresponding Data information, thereby effectively simplifying the processing flow of big data information, and standardizing a series of network behaviors.

### 3. CONCLUSIONS

In the context of the era of big data, strengthening the application of artificial intelligence technology in computer network technology can ensure network security, improve network system security performance, and comprehensively improve data information processing capabilities, and prevent computer systems from appearing in large amounts of data calculations. The phenomenon of collapse. As people's demands for network security increase, artificial intelligence technology should also change accordingly. Choose a reasonable artificial intelligence technology development model, effectively use big data technology to facilitate people's lives.

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# Multi-Dimensional Protection Law Adaptive Matching Algorithm for Citizens' Personal Information Under the Background of Intelligent Crawling Data

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**Abstract:** The legal construction of the protection of personal information rights in the era of big data should focus on the core issues of who will protect and how to protect them. The regulation of responsible subjects should change from identifiable to risk controllability, and from fragmentation to systematization in legislative norms. In terms of multiple protection, the supervision, self-discipline and management are promoted in parallel, and the litigation jurisdiction spans the cyberspace and the real society, so as to realize the effective protection and rational use of personal information. In order to accurately analyze how different users like different products, solve the problem of reasonably recommending products to different users, and improve the accuracy of the recommendation algorithm and the conversion rate of advertisement placement, a web crawler technology using Python is designed to crawl massive advertising data information. It simulates the behavior of users clicking on advertisements, generates tag data, and implements an intelligent advertisement recommendation process combined with collaborative filtering algorithms.

**Keywords:** Intelligent Crawler, Multi-Dimensional Protection of Information, Matching Algorithm

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## 1. INTRODUCTION

With the vigorous development of mobile Internet technology and big data technology, the means and degree of personal [1] information collection and utilization have been continuously upgraded. While enjoying convenient services such as user-customized services and market-oriented and accurate promotion [2] brought by big data, people also enjoy personal information. Experience the danger of personal information being leaked and violated. In the era of big data, personal information is particularly important. According to the "Opinions of the Central Committee of the Communist Party of China and the State [3] Council on Building a More Complete System and Mechanism for Market-Based Allocation of Factors" published in April 2020, data is included in the category of factors of production for the first time [4].

By the end of 2020, the number of netizens in my country has reached 989 million, and the Internet penetration rate has increased by 70%. [5] At present, the leakage of citizens' personal information based on the application of big data is becoming more and more serious, and the resulting illegal and criminal phenomena such as text message harassment, privacy leakage, violent debt forcing [6], and telecommunication fraud are emerging one after another, which not only affects the normal life of citizens [7]. With the rapid development of the Internet and the advent of the era of big data, the production and demand for data in all walks of life are rapidly increasing. How to efficiently collect, analyze and sort out the data information of interest from the massive data has become an indispensable part of our lives [8].

With the rapid development of computer technology, people have done a [9] lot of research work in the literature analysis system in the past ten years. Wang Yuefen et al. developed a software for statistical analysis of journal publication volume and keywords [10]. Zhang Mannian and others put forward the idea of constructing the evaluation and analysis system of scientific journals. Jiang Chunlin, etc. As the core content of

the search engine system, web crawler can directly retrieve and process information for [11] the underlying organization in the Internet system and can directly affect the update of relevant data and information in the Internet system based on the fundamental level [12]. We need to look at the impact of big data, cloud computing, WeChat, smartphones, etc. from a new perspective. [13] In the information society, the protection of personal information needs to be regulated by law, and the advent of the Internet era has greatly increased the importance of data and network virtual property [14].

Although my country's protection of personal information has been [15] continuously enhanced, information violations have occurred from time to time. This reflects that my country's personal information [16] protection model still has problems such as outdated concepts and lagging systems. How to balance the relationship between information utilization and information protection has become one of the biggest legal problems at present. Establish a complete legal protection system and increase punishment for illegal and criminal acts. As far as the current legal system is concerned, in addition to the general provisions of the [17] Civil Law, the relevant implementation rules should be issued as soon as possible. Web crawlers can be simply divided into two categories: general crawlers and topic crawlers (focused crawlers). Universal crawler is to crawl all web page information on the Internet through search engines, such as Baidu, Google, etc [18].

Literature analysis can be divided into two levels: macro-level analysis and micro-level analysis: at the macro level, the system helps users understand the research overview under the retrieval theme; at the micro level, the system helps users understand the specific research content under the retrieval theme. We describe the research overview from the four perspectives of document time distribution, author distribution, subject distribution and keyword distribution. Web crawler technology is also called web spider technology, or it can be called web robot. The web crawler technology is mainly that the search engine efficiently downloads the

relevant web page information through the World Wide Web, and further collects information from the corresponding network system along the web page link.

## 2. THE PROPOSED METHODOLOGY

### 2.1 The Intelligent Crawler

The second is improper collection by network service providers or operators on social platforms. Such collection methods are more concealed, and they usually take advantage of their technological advantages to induce customers to provide unnecessary personal information without ordinary people noticing. The third is improper collection of software developers or software providers on the technology application platform. The rational man hypothesis originates from modern humanistic thought. The middle of the last century, humanism emerged in the United States. It takes people as the ultimate goal, emphasizes the dignity and value of people, allows people to express their thoughts and emotions freely, and realizes people's control over themselves.

Therefore, the right to self-determination of personal information is given to individuals through the means of information confirmation, so as to realize the control of personal information. It is recommended to set up a third-party agency to rate the company's personal information protection measures and regulatory measures, and make the rating results public, so that the public can know the company's protection of citizens' personal information. The design goal of the topic crawler is to collect topic-related web pages. The determination of the topic is to extract the representative topic feature items from the Internet, and then perform the topic similarity calculation with the web page to complete the calculation of the topic relevance of the web page.

In order to improve the accuracy of data acquisition. It can be seen from Table 1 that the literature quality evaluation index system we designed comprehensively considers the influence of literature, the influence of literature authors, the influence of literature publications, the influence of literature references and the influence of literature citations. The first-level index in the table is the average of its corresponding second-level index.

### 2.2 The Multi-Dimensional Protection of Information

In order to eliminate dimensional differences, all secondary indicators need to be standardized. The search engine system supported by web crawler technology is a relatively common information retrieval method and data query tool, which provides greater convenience for people's various network experiences in the new era. In the context of modernization, Internet technology continues to innovate and develop, and data storage forms show diverse characteristics. There are many types of personal information illegally provided in reality, including document information, address information, credit information, transaction information, as well as track information, health and physiological information, etc. All kinds of information" ① are at risk of being provided illegally, among which there are four serious forms of personal information being provided illegally.

The first is the situation where the information provided whereabouts is used by others as a crime, or where personal information is provided knowingly that it is used to commit a crime. Article 14 of my country's Personal Information Protection Law stipulates the principle of informed consent.

This principle places the information subject at the center of information decision-making, assumes that individuals can manage personal information independently and rationally, and makes a structural allocation of information risks based on this principle, and the responsibility for information protection belongs to individuals. Enterprises protect citizens' personal information. Law enforcement agencies can also rely on legal provisions to supervise and inspect the protection measures for citizens' personal information formulated by enterprises.

### 2.3 The Matching Algorithm

Through external legal supervision, strengthen corporate self-discipline and allocate responsibility for the protection of citizens' personal information to each enterprise. In this paper, Taobao is used as the material website, the keyword collection is used to determine the theme, and the collection of more than 20,000 advertisement data is used as the basic data to achieve the coverage of most tag categories. In addition to picking the initial seed. The preprocessed literature data will flow through the analyzer module, which consists of three sub-modules. The literature overview sub-module is responsible for generating macro-level analysis results, the literature recommendation sub-module is responsible for generating micro-level analysis results, and the report generation sub-module is used to generate Literature analysis report. Under the web crawler technology, according to the initial URL target sequence, various information and related links in the network can be selectively explored and accessed, and the required information and data can be obtained smoothly.

In the process of applying web crawler technology to implement information capture, personal information is illegally used, which actually exceeds the reasonable use limit of "the law requires information rights holders to tolerate minor harm from the use of personal information by others" ②. Common situations include purchasing personal information for business promotion, and using personal information to register a Taobao account to perform "Taobao swiping". The exclusive domination of information reflects the current information protection model's position of resolutely safeguarding personal dignity and personal freedom, and greatly promotes the economic and social development in the era of small data. After the occurrence of "after the sheep"-style supervision. For example, a courier company launched the "Feng Dian Slip", customers can fill in the sending and receiving information by scanning the QR code of the shipping slip, without filling in personal information on the shipping slip.

The intelligent advertisement recommendation system designed in this paper needs to analyze the HTML page text of Taobao.com, and uses the Beautiful Soup package of Python. The web page is parsed into a tag tree composed of many nodes, and various useful information is extracted on the basis of web page tags. All modules of the system are implemented by Python. Among them, the crawler module mainly uses the third-party asynchronous network request library aiohttp, the multi-process standard library multiprocessing and the third-party parsing library lxml of HTML pages. With the help of multi-process asynchronous crawler, it can achieve a speed of 50-200 articles/second of document data acquisition. Web crawler technology is an important means and core tool for network information collection and retrieval. The design principles related to web crawler mainly include the following. Entering the era of big data, the data value of personal information is reflected in the

way of quantitative change and qualitative change. "Although a certain type of personal information that is packaged and processed is not for the purpose of identifying an individual, the typed treatment after categorization processing will also cause serious damage to individuals. Infringement of the rights of the information subject" ③. However, the protection, sanction capability, and strike radius of existing laws and judiciary are all inadequate, and high-tech features are ignored. Personal information infringement means that the infringer collects, processes or uses personal information without the informed consent of the information subject. The current protection model holds that the legal interests of information are personal interests, individuals are the best decision-makers for their own interests, and the infringer is in the same legal status as the information subject, so the information subject decides whether to file a lawsuit. In the era of big data, if the circulation of personal data is completely prohibited, it will hinder social development to a certain extent, and the imbalance between supply and demand may lead to more personal information trading. Therefore, at the same time as legislative protection, it is recommended to formulate the "permissible level of dissemination of personal information". After simple data cleaning, the specific information on the collected web pages can be stored on the local server in different ways. The storage methods used in this article mainly include MySQL database storage and Excel table storage. To add the collected information to the database. The literature analysis report given by the system consists of introduction, literature overview and literature recommendation.

### 3. CONCLUSIONS

The current personal information protection framework is premised on the assumption of rational persons, the principle of informed consent is the core, the right to information self-determination is the main content, and civil litigation is the remedy. The current private law protection path is in line with the characteristics of information individualization in the era of small data. The web crawler based on Python language has become the mainstream tool for crawling data on websites. The request library can be used to obtain the content of the webpage, and the obtained html text can be parsed through bs4, and then the user can be obtained by simple data cleaning and collection using re regular expressions Really needed information data.

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# Intelligent Information System Instructs the Difference Between Sports Theory and Practice, Computer-Aided Modeling

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**Abstract:** This paper studies the computer-assisted model of the difference between the theory and practice of physical education by the information system of the intelligent department. First, multimedia physical education courseware, physical education student learning courseware, physical education information inquiry and exchange, auxiliary physical education teaching research, office automation, etc. A lot of intelligent information guidance is provided, but there is a gap between theory and practice in the process of combining multimedia technology and physical education. The use of intelligent information systems to conduct computer-aided modeling of this gap shows that the gap is about 4.5%~7.9%.

**Keywords:** Intelligent Information System, Difference, Computer-Aided Modeling, Sports Theory and Practice

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## 1. INTRODUCTION

With the development of multimedia technology and the advent of the Internet age, it has had a certain impact on the traditional teaching mode, and the teaching concepts, teaching methods, teaching methods [1], etc. have also changed accordingly. Multimedia network teaching platforms based on multimedia technology, data technology [2], network technology, etc. have become the main trend of future development and are used in various fields [3] of education. Physical education is one of the important components of college teaching. With the expansion [4] of colleges and universities and the increase of students, the difficulty of teaching physical education teachers is increased [5] to some extent. How to integrate advanced teaching concepts and use CAI to build a multimedia network teaching [6] platform to promote college physical education the reform is currently one of the main tasks of college sports workers [7].

It can be seen that the research on college physical education based on the CAI multimedia [8] network teaching platform has certain practical significance and theoretical value. In physical education, there [9] is a huge difference between the teaching of physical education and other courses, which is reflected in the guidance of teachers [10] and the participation of students. The focus of physical education is on students' physical and mental activities [11]. Students use physical and mental activities. To achieve a unified connection, so as to carry out physical exercise, and [12] at the same time cultivate students' Olympic spirit. Computer-assisted teaching mainly combines sound, text, image [13] and video, and uses information technology as a supporting platform to carry out various teaching behaviors with the aid of computer technology [14]. Teaching content can use computer technology to achieve effective combination of sound, text, image and video for classroom teaching, which not only enriches the originally boring teaching content, but also greatly improves the initiative and enthusiasm of students in learning [15].

The rapid development of modern science and technology, especially the emergence of computer multimedia technology and the application of network technology, have brought profound changes to modern teaching, impacting traditional

teaching models and teaching concepts, and causing changes in teaching methods and teaching methods. Computer-aided instruction (CAI) is the core content and main technical means of modern information technology applied to education. As a new modern teaching method and means [16], CAI has been widely used in various fields of education and teaching. However, in school physical education, both the application theory of CAI [17], practical application, software development, etc. are relatively lagging behind, and it is difficult to adapt to [18] the needs of modern physical education. This article will do some theoretical discussions on the concept of CAI [19], the significant role of CAI in school physical education application and development influencing factors, as well as development [20] countermeasures, in order to promote the development of [21] computer-assisted physical education. In cities and regions with first-class technology and developed economy [22], the multimedia equipment of major universities is already complete. However, in remote mountainous areas and poor primary [23] and secondary schools, it is difficult for them to have enough food and clothing with minimal financial investment [23], let alone to use multimedia technology for teaching [24].

Multimedia equipment is the support of computer-assisted teaching with multimedia technology, and the lack of hardware resources restricts the development of computer-assisted teaching. In the process of multimedia-assisted teaching, computer software resources are indispensable. However, because the development of physical education auxiliary software touches many fields, multimedia-assisted teaching is in a state of serious shortage. How to make computer multimedia technology play its active role in physical education is a very serious subject. It not only involves the standardization of sports movements, but also involves the application of computer knowledge. This requires sports educators to update their traditions. The teaching concept, actively learning the application of computer software knowledge. Computer-aided instruction (CAI) is the core content and main technical means of applying computer information technology to education. In 1959, the American BIM company successfully developed the first computer-aided instruction system (CAI), which is an important sign that mankind has entered the era of computer teaching applications. With the rapid development of computer

technology, especially the development and improvement of multimedia technology, network application technology, and data compression technology.

## 2. THE PROPOSED METHODOLOGY

### 2.1 The Intelligent Information System

At present, more and more people are paying attention to the research on the application of big data in education. For example, Tan Zhongli et al. proposed a cloud computing-based big data and teaching training platform, and Tan Xiangwei et al. proposed the teaching reform of the Java course in the context of big data. It is also proposed to collect various data related to the Java course to obtain the students' usual learning situation, and use the model to automatically conduct the assessment. The big data research in the experimental course is mainly for the consideration of the experimental platform, lack of data analysis, and the results of the analysis cannot be used to guide the reform of teaching.

First, rely on the cloud computing platform to build a teaching platform for big data experiments. Use Hadoop and HDFS to build an experimental teaching platform for big data analysis, management, and storage, and build a network virtual laboratory based on the cloud platform. Install a computer operation record crawler in each student experiment machine, record all the students' operations during the entire experiment process (experimental operations on the virtual platform and all operations outside the platform), and upload them to the cloud platform. The cloud platform uses data mining and machine learning techniques to model historical experimental data and adjust the functions of the existing virtual platform. For example, the data of new students who use the virtual platform, such as providing auxiliary knowledge needed by students during the learning process, are also crawled and sent to the cloud platform for processing in real time. The model analyzes the problems according to the current steps of the students' operations, and feeds them back to teachers and students in real time, helping teachers understand the students' experiments and correcting problems in the students' experiments in time. The operating data generated during the use of new users is also recorded, and the intelligent model is constantly revised.

### 2.2 The Information System Guides Sports Theory

There are two important factors that affect the popularization and development of multimedia-assisted physical education. First, at the leadership level, as traditional Chinese culture has been deeply rooted in the Chinese people's thinking, cultural courses have been the majors of Chinese students for thousands of years, and they have never paid attention to the cultivation of students' physical fitness, which has led to education departments and school leaders even Yu students' parents ignore the development of physical education. If you want computer multimedia technology to play an active role in physical education, it is necessary for the education authorities and school leaders to pay attention to physical education.

At the level of physical education teachers, the use of emerging computer multimedia technology has considerable difficulties for old teachers who have been engaged in physical education for many years. Many old teachers lack computer understanding. Classroom handouts need to be handwritten and cannot produce electronic courseware, so teachers are improved the emphasis on emerging information technology is an important factor in the development of

multimedia-assisted physical education. Promote the development and application of physical education courseware in colleges and universities, and improve students' learning autonomy and initiative. College Physical Education Student Learning Courseware (CAL) is a new learning method based on the powerful interactive functions of computers and the development of modern network technology (hardware, software). The development and application of physical education courseware will change the traditional teaching methods and models, using multimedia microcomputers and modern information technology to create teaching situations that are consistent with the teaching content, so that students will be immersed, infected and inspired, and can be fully stimulated. Students' interest in learning and thirst for knowledge, give play to the learning and training advantages of entertaining and learning, make students' learning behaviors from passive to active, make learning exercises easy and effective, and enhance students' initiative and autonomy in learning.

The development and application of computer-assisted physical education learning courseware has achieved satisfactory results. For example, the development and application of the software "the learning and testing system of sports and health care knowledge for middle school students" has proved this point well. Introduce computer-assisted learning technology in the teaching of physical exercise knowledge, health care, technical analysis, special theory and other sports theory courses, use computer-assisted physical learning courseware.

### 2.3 The Guiding the Difference Between Sports Theory and Practice, Computer-Aided Modeling

Traditional physical education teaching models in colleges and universities are mostly through teachers' explanations and demonstrations, and students' self-exercises to achieve the teaching goals. Sports movements are very dynamic, and it is often difficult for students to grasp the essentials of the movements from the teacher's demonstrations, and it is difficult to form intuitive and complete sports memories. In this regard, CAI-based physical education does not simply rely on CAI to enhance the classroom effect, but to make up for the shortcomings of the traditional physical education model, maximize teaching resources, create an interesting and interactive learning atmosphere, and stimulate students' passion for physical learning strengthen the teacher's office automation operation level, improve work efficiency and work effect.

In traditional physical education, physical education teachers manually input student data, and mainly rely on manual calculation. The amount of data is large and complex, which will inevitably cause teachers' irritability and cause certain errors. The introduction of multimedia computers and networks freed the majority of physical education teachers from these tedious tasks. In addition to Word, Excel and a large number of accounting software, the available software also includes practical application systems for physical education developed independently by colleges and universities, such as "College Student Physical Fitness Monitoring System", "Physical Education Performance Evaluation System", "Track and Field Games Arrangement and Performance Management System" and so on. These systems simplify the work process to a certain extent, speeds up the work progress, frees many sports workers from tedious physical work, and saves them a lot of time and energy in



conducting student sports research. Improve work efficiency to a large extent.

The sharing of resources is the biggest advantage of the network. Use modern network technology to obtain more materials and information needed for physical education, learn from the successful experiences and practices of others, update one's own physical teaching ideas and concepts, enrich one's own teaching materials, teaching methods, and teaching methods, thereby improving one's physical education teaching level. At the same time, you can pass your own things to others, and communicate with colleagues to the greatest extent.

### 3. CONCLUSIONS

Multimedia teaching is the foundation for cultivating interest, ability and lifelong physical education. It is conducive to students' active learning, inspiring students' potential abilities, and exerting their personal strengths. At the same time, it also comprehensively improves students' ideological and moral quality, scientific and cultural quality, labor and life skills an important means of quality, social communication quality, physical and psychological quality. The application of multimedia technology has brought a qualitative leap in physical education. It not only intuitively solves the difficult problems in teaching, but also makes the teaching content from flat to three-dimensional, from static to motion, from text to sound and image, which will greatly increase the initiative and interest of classroom teaching

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# Office Meeting Product Interaction Design Algorithm Under the Background of OpenStack: from Private Cloud to Local Area Network Modeling

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**Abstract:** This paper conducts in-depth research and analysis on the development and core components of OpenStack technology, and designs and implements private cloud and local area network modeling suitable for small and medium-sized enterprises based on OpenStack technology. User research entry point. Using the user experience research method to conduct research and analysis on user needs and related product use issues in the office meeting scenario, organize the content and characteristics of the needs, and find out the user's demand synergy in the office meeting. The design practice result "Intelligent Interactive Conference System" verifies the application advantages and significance of interaction design in conference product systems.

**Keywords:** Office Meeting Product, Interaction Design, OpenStack, Local Area Network

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## 1. INTRODUCTION

Cloud computing is a new business computing model developed by grid computing, distributed computing and parallel computing. The principle of cloud computing is to use the computing resource pool to provide users with computing power, storage space and information services to provide users with convenient [1], efficient and cheap services. Cloud computing users can freely obtain resources in the resource pool through application and payment, and can freely expand their resources [2]. The emergence of cloud computing, a business model, is gradually replacing traditional resource usage and delivery models. In foreign countries, Aleforce was the first company to commercialize the Yunsheng concept. As a pioneer of cloud services, it provided users with software W services [3]. After that, the public cloud products of companies such as Amazon, Google and Microsoft also achieved great success.

Looking at the country, cloud computing is in the initial state and the development is relatively slow. Some large Internet companies [4], such as Alibaba, Baidu, Tencent, etc., have launched their own cloud products. Among them, Alibaba Cloud and Baidu cloud disk applications are relatively universal. The popularity of public cloud enables the public to directly enjoy the benefits brought by cloud computing and have a clearer understanding of the concept of cloud computing.) products [5], namely office automation products, refer to various technologies, machines or equipment products that are engaged in office affairs in traditional offices. The wide application of today's OA products has significantly improved the efficiency [6] of office transaction processing, and the office experience of employees has also improved. However, traditional OA products are suffering from stigma. Most OA products are dominated by [7] W technology development, and W guarantees the realization of technology or product operation [8] logic as a measure of product quality. More consideration is given to the interests of the buyer's enterprise, and the actual user of the product, that is, the employee's feelings, is neglected [9].

In addition, the high purchase cost and high learning cost of the product reduce the second choice of the buyer's company, thereby reducing the stimulation to the seller's product

replacement and optimization [10]. The most representative application of tactile interaction in conference products is the interactive electronic whiteboard, which goes beyond the purely visual output of the projector [11]. The interactive electronic whiteboard can communicate information with the computer. In addition to being connected to and using a projector to project the screen [12], it can also use a specific positioning pen instead of a mouse to operate directly on the whiteboard. Any application program can be used to perform file editing. All kinds of editing [13], commenting, saving, etc., as long as it is done with the keyboard and mouse, the electronic whiteboard can be done in the same way. The interactive electronic whiteboard [14] also supports copying, directly connecting the electronic whiteboard to the printer, and writing on the blackboard through a specific positioning whiteboard pen [15]. When printing is required, you only need to press the special print button on the whiteboard to achieve black and white or color printing. The Apache server is one of the important components of building this private cloud platform [16], it is one of the Web service programs with a high market share, its cross-platform and security are widely recognized, and it has fast, reliable, and simple API extensions [17]. Apache can run on almost most existing systems and is one of the most popular software on the Web server side today due to its wide acceptance of cross-platform and security [18]. Its source code is open and it adopts a modular design.

Therefore, a private cloud platform is built to provide cloud services mainly for the enterprise, which is not open to the public, works within the firewall of the enterprise, and the enterprise IT personnel can effectively control its data, security and service quality [19], has become the favored choice of large enterprises. In addition, private cloud can provide more efficient and personalized elastic computing resource allocation capability [20], can more effectively utilize the existing IT equipment resources within the enterprise, and create a cloud platform that is more in line with the needs of the enterprise. OpenStack adopts a modular design, and its 3 The main modules Nova (computing service), Swift (storage service) and Glance (image service) can be combined to work together to provide complete cloud [21] infrastructure services; they can also work independently to provide virtualization, cloud storage and mirror service. In

addition, the modular design can integrate old, old, and third-party technologies to meet business needs and make it easier for developers to re-develop OpenStack [23].

## 2. THE PROPOSED METHODOLOGY

### 2.1 The OpenStack

Based on the introduction of the open source framework of OpenStack, the private cloud computing platform built in this article consists of five computing services (Nova), storage services (Swift), mirroring services (Glance), identity authentication services (Keystone) and web interface services (Horizon). part composition. Among them, Nova is the controller of the cloud platform, which provides a tool to deploy the cloud, including running virtualized instances, managing the network, and controlling the access of users and other projects to the cloud. Swift is a large-capacity, scalable object storage system with built-in redundancy and fault tolerance. Object storage supports a variety of applications, such as replicating and archiving data, image or video services, storing secondary static data, developing new applications for data storage integration, and storing data of difficult to estimate capacity.

OpenStack is an opensource cloud implementation software. It is an opensource project jointly developed by NASA and the organization Rackspace, aiming to provide a completely open cloud computing platform that can be deployed on a large scale. OpenStack is known as the most classic and most important opensource cloud implementation software among "cloud computing" products, because it has attracted great attention in the field of open source software and the cloud computing industry. It is one of the most popular cloud computing operating system software, and as of July 2010, it has received strong support from as many as 25 enterprise organizations. In 2011, the membership of the OpenStack organization doubled. The data logically defined by the operation or maintenance personnel must also contain the tenants and policies (such as quotas) used. In theory, each organization VDC will maintain its own service catalog (Catalog), such as nova -api, glance-api and other opensck related components. Operation or operation and maintenance personnel organize one or more groups of organizational VDCs through the physical resources (such as computing, network equipment, storage) provided by the supplier DC, making the cloud platform more flexible.

Create cloud-based elastic storage for web applications [5], etc. Glance is a storage, query, and retrieval system for virtual machine images. The service includes a Restful API that allows users to query VM image metadata and retrieve actual images via HTTP requests. Keystone provides authentication and management of user, account, and role information services for OpenStack clouds running OpenStack Compute, and authorization services for OpenStack Object Storage. Horizon is a web front-end interface provided to users to use the cloud platform.

### 2.2 The Private Cloud to LAN Modeling

he latest OpenStack can be divided into 7 parts, computing component (Compute, namely Nova component), object storage (Object Storage, namely Swift component), identity authentication (Identity, namely Keystone component), Dashboard (Dashboard, namely Horizon component), Block Storage (Cinder), Network (Quantum) and Image Service (Image Service, Glance) are shown in reviews. This article focuses on Nova components, Swift components, Keystone

components, and Glance components. Define the business implementation interface. Business interface, as shown in Table 4-1. Define the public function seinnessinput, which is used to set business input parameters, which is embodied as a file or data stream in a specific business scenario.

Define the public function seusinnessOutput, which is used to set business output parameters, which are embodied as files or data streams in specific business scenarios. Define the public function se old usageOperation, which is used to set business operation parameters, which is reflected in data writing, data reading, file output, and data calculation in specific business scenarios. The public function setBusinessOperationTime is defined, which is used to set the business operation time, which is emergent in specific business scenarios. Since the private cloud built in this paper is mainly used in scientific research and small and medium-sized enterprise environments, all components of the cloud platform are located in the same local area network. In this way, any physical computer on the client side in the local area network can directly access or use cloud computing resources.

In addition, in order to make the cloud platform more secure, Nova provides a network solution that isolates virtualized instances from the external network, which is to build a private network for virtualized instances that is isolated from the external network. communication. If the instance needs to communicate with the external network, then assign a floating external network IP address to the instance. The framework design of the system mainly starts from H layers. The top layer of the system is the user layer, that is, the customers who directly use the laas service, and the users in the delivery are divided into ordinary tenants and virtual operators. Ordinary tenants are the final consumers of laas services, and purchase required computing power, network resources, and high-performance storage through orders. Virtual operators are operations or operation and maintenance personnel. Logically speaking, they maintain their own "virtual data," and the reason W says "virtual data" is because they are not directly responsible for the real data. operation and maintenance.

### 2.3 The Office Meeting Product Interaction Design Algorithm

In terms of the organizational process of the meeting, most of them can be divided into four stages: the preparation stages of the meeting, the preparation stage before the meeting starts, the meeting progress stage, and the finishing stage after the meeting. The preparatory stage of the conference mainly includes the preparation of conference materials, the organization of the personnel of the conference, and the arrangement of the time and place of the conference. The preparatory stage before the start of the meeting mainly includes the construction of display equipment, the distribution of materials, and the organization of participants. The conference stage is mainly about the presentation and presentation of the speaker, the discussion of the participants and the minutes of the conference. The finishing stage at the end of the meeting is mainly the finishing work of meeting materials and discussion content. Attitude research is mainly to understand the purpose and feeling of users using products, including the reasons for users to choose products, including users' expectations for the functions and value of products, as well as users' feelings and evaluations after using the products. Behavioral research mainly discovers the behavioral characteristics of users using products in the real environment by observing user behaviors and collecting various data on users' use of products, and discovers product problems to be solved. The corporate office meeting is a discussion among

employees on the overall management activities such as production, operation, and daily operations within the company. The content of the office meeting is oriented to W's work goals, and it is not limited to the format of the meeting. Therefore, the content of office meetings has the characteristics of goal, which determines that the forms of office meetings are mostly internal meetings, with fewer members, meetings, discussion meetings, decision-making meetings, executive meetings and other types of meetings with clear goals. main.

Take an Internet company as an example. The department responsible for an Internet product is directly related to the product planning department. The procedures and elements of the interactive framework of the conference system interface have the following aspects.

### 3. CONCLUSIONS

This paper proposes a scheme to build a private cloud computing platform based on OpenStack, which aims to provide elastic computing services for scientific research laboratories and small and medium-sized enterprises to meet the needs of different users and different stages. At the same time, by integrating various development environments and development tools in the virtual image, high-availability cloud services can be provided. In the office meeting scenario, users will be in different roles, and use different products or means to coordinate with different task requirements in the meeting process. In this process, it is easy to encounter problems of synergy of requirements and friction in product use.

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# Research and Exploration on the Bilingual Course Construction of Java Web Application Development Based on AI

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**Abstract:** The bilingual course "Java Web Application Development" is the core course of computer application technology major and is a vocational ability course that combines theory and practice. By studying this course, students can understand the overall approach to JSP development and be able to independently complete JSP website development work. The project teaching mode aims to cultivate quasi professionals with comprehensive professional abilities, gradually meeting the needs of OBE talent cultivation mode. This article analyzes the main problems in the teaching of Java Web Development, actively explores the ideas for curriculum teaching reform, and proposes a blended teaching mode of "online offline experimental" that conforms to the characteristics of the profession.

**Keywords:** Bilingual Course Construction, Java Web, Application Development, AI

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## 1. INTRODUCTION

The course "Java Web Application Development" is a core course in the professional learning field of computer application technology, which combines theory and practice as a vocational ability course. By studying this course, students can have a comprehensive and clear understanding of the development of JSP websites, understand the overall approach of JSP development, and independently develop JSP websites to meet the real needs of enterprise positions. The project-driven teaching model is a student-centered and project-based teaching model that simulates the development process of enterprise products in school laboratories. It is a teaching model that incorporates the characteristics of exploratory teaching, task driven teaching, and case teaching. For students, "project driven" is a learning method that is suitable for learning various practical and operational knowledge and skills, which is conducive to students' clear learning goals.

For teachers, "project driven" is a teaching method based on constructivist theory, suitable for cultivating students' ability to learn independently, analyze problems, and solve problems. The occurrence of this phenomenon indicates that the relevant teaching has fallen into a predicament, and our teachers have an important responsibility for this, especially those who are teaching on the front line of the course. Therefore, curriculum teachers urgently need to carry out teaching reform, explore new teaching methods and means, and improve teaching effectiveness.

In this regard, relevant teaching workers have carried out certain teaching reform explorations. With the development of social economy and the increasing demand for production, new and old technologies in the engineering field are frequently updated and iterated, and traditional outdated technologies should gradually be replaced by advanced scientific technologies. However, the update of textbooks on the "Java Web framework" in higher education institutions in China is slow. For example, currently spring 5 is already used in the industry, but there is a shortage of textbooks on Spring 5 on the market, let alone selecting suitable and excellent textbooks to carry out teaching activities. To reflect the

practicality, timeliness, and universality of teaching content, in the context of the "double first class" construction, it is necessary to restructure teaching content in a timely manner, delete outdated technologies, add cutting-edge technologies, and make it a regular link for sustainable updating and improvement in curriculum construction.

Compared with traditional teaching methods, project-based teaching mode mainly manifests in changing the traditional three centers: from teacher centered to student centered; Transforming from a textbook centric approach to a project centric approach; Shift from classroom centered to practical experience centered. Using project-based teaching, teachers carry out teaching activities based on the characteristics of students. Under the guidance of teachers, students actively learn and acquire new knowledge and skills by utilizing existing knowledge and skills, which stimulates their interest in learning and fully mobilizes their internal motivation. Project driven, practice while speaking, teach by doing, and learn by doing. Teachers organize teaching content and project implementation according to project processes and system functional modules; The teacher conducts on-site development and leads students to complete the functional implementation of demonstration modules. Students independently complete other functional modules through mutual discussions, online reference materials, and discussions with teachers, ultimately completing the project.

## 2. THE PROPOSED METHODOLOGY

### 2.1 Analysis of the Problems in Bilingual Teaching of Java Web Application Development

Teaching is 'one size fits all' without considering students' knowledge foundation and ability differences. Although the concept of hierarchical teaching is widely known, few teachers have put it into practice. The reason for this is that on the one hand, teachers have limited time and energy, and on the other hand, they do not have enough determination. The "one size fits all" approach to teaching results in students with weak foundations being unable to keep up with their learning pace and giving up early, while students with strong abilities

are not able to fully improve their skills. With the popularization of computers and the development of technology, teaching methods are becoming increasingly diverse. However, at present, the teaching methods of university teachers still use PPT explanations as the main method, supplemented by blackboard writing, experiments, etc. The teaching method of this course is also the same: each course includes two class hours, one for PPT explanation and the other for experimental operations.

However, each course has a tight schedule and a large amount of information, making it difficult for some students to digest the content of PPT explanations in a timely manner, which seriously hinders the progress of the experiment, let alone the development of students' personalities. To improve the compatibility between teaching effectiveness and market demand, it is necessary to adopt diversified and more reasonable teaching methods in the context of the "double first class" construction, so that every student can benefit from it.

Focusing closely on the achievement of professional competence goals, we will organize experienced frontline teachers and professionals with rich experience in enterprise web project development to discuss together, shifting from "based on logical clues of knowledge" to "based on workflow of professional activities". We will deconstruct the course content to meet the specific work tasks in the web application development process and their knowledge and skills needs, with a focus on completing a complete news release system project based on cultivating students' professional abilities and integrating PPT explanations into project implementation, students can complete corresponding modules on their own according to the teacher's explanations and project implementation process.

Other functional modules (such as adding, querying, deleting, etc.) are independently completed by students. Students can consult materials, discuss with other classmates, or seek teacher advice. Students' initiative, enthusiasm, and creativity in learning are fully utilized, and they are systematically trained in engineering. Their comprehensive application, practical hands-on ability, and engineering thinking ability are improved. Implement iterative teaching to promote the progressive improvement of students' knowledge and skills during the iterative process. A prominent feature of JavaWeb is that the same project can be implemented through various technical means, such as using basic JSP + JavaBean + Servlet, and various framework technologies.

Therefore, for the same project, utilizing the core knowledge modules that gradually progress along the course main line, the project is iteratively completed, achieving a spiral increase in students' knowledge and abilities. In the process of repeated iterations, the gradual increase in the difficulty of knowledge modules is in line with students' learning characteristics. At the same time, the comparison between the previous and subsequent iterations effectively increases students' understanding and absorption of knowledge, promoting the steady improvement of students' knowledge and skills.

In the context of the "Double First Class" construction, as a teacher of this course, first of all, we need to change our teaching concepts, stimulate students' interests, and encourage them to participate more actively in teaching; We also need to move from the campus to the software industry, increase engineering practical experience, improve professional abilities, and ensure that teaching content matches market demand through job placement and social service. Secondly, in situations where the overall teaching staff is not sufficient,

the MOOC platform can be used to introduce excellent courses taught by teachers with high professional titles or senior engineers. While enhancing the professional abilities of teachers, students can establish personalized knowledge systems based on their personal interests and needs to improve their learning quality. Finally, enterprise engineers are introduced through the school enterprise cooperation platform to make up for the shortage of engineering experience of teachers in schools. It is more suitable to adopt group collaborative learning in project teaching. Before grouping, establish norms for grouping principles, the allocation of team members, the division of work, and the number of members.

## 2.2 The Bilingual Course Construction of Java Web Application Development Based on AI

The basis for grouping is students' academic performance, knowledge structure, learning ability, personality traits, gender matching, etc. In the course design phase, the implementation technology of the course project will be upgraded from MVC3 layer architecture technology to framework technology. Firstly, by still practicing while speaking, the teacher led the students to redesign the project login module from MVC3 layer architecture technology to Struts framework technology implementation. The students redesigned the project based on the teacher's explanation and applied Struts technology to the entire project.

Secondly, in terms of project topic selection, the original student project module may be expanded by adding course management and score management modules to the original functions. Or develop new projects such as book management systems, flower sales websites, high-speed train booking systems, etc. Students can independently complete the design and development of the system according to the software development lifecycle. Implement adaptive hierarchical teaching and teach students according to their aptitude. In the teaching process, it is necessary to consider the differences in students' knowledge and abilities to ensure that excellent students learn more, while also ensuring that students with weak foundations have a sense of gain, that is, to make all students feel a sense of gain.

To this end, adaptive hierarchical teaching is implemented, which sets a broad range of teaching objectives, where all students start learning from the same starting point and ultimately reach different goals within the target range. For different students, there may be differences in learning content and progress within the same time and space, reflecting the concept of individualized teaching. To ensure that students can fully understand and master the knowledge to be used before the experimental operation, the teaching videos in this platform are divided into two categories: one is used for students' autonomous learning before class, and this type of video mainly explains basic theoretical knowledge. The characteristics of these knowledge are easy to understand but need to be memorized.

One type of video is used for students to consolidate and deepen their understanding of knowledge after class. This type of video mainly explains difficult points and experimental operations, and it is easy to be left behind if not operated for a long time. Firstly, let students understand the main functions of the project software, understand the main task modules that the project needs to complete, and guide them into the "learning context". Secondly, students apply the knowledge they have learned to gradually complete tasks at

each stage. Third, imitate the source code of the project, discuss, and learn in groups. Each group, under the leadership of the team leader, studies and determines the implementation method of the project, and jointly complete the system analysis, structural design, code writing, program debugging and other work of the project. Fourthly, gradually integrate the tasks completed by each group at each learning stage into a complete news management system. Fifth, the teacher summarizes the solutions to various problems encountered in the process of student development, and Reinforcement learning effect.

### 3. CONCLUSION

This article proposes four countermeasures and suggestions for the problems in the teaching of the bilingual course "Java Web Application Development", namely reforming teaching design, implementing "dual project" leading teaching, iterative teaching, and adaptive layered teaching. The implementation of these teaching reforms is closely linked, not isolated. The application of project teaching mode in the teaching of the course "Java Web Application Development" can effectively achieve the teaching objectives, improve teaching efficiency, achieve the integration of theoretical knowledge transmission and practical skill cultivation, greatly improve students' professional abilities, and independently complete the work of JSP website development.

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