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# Experimental Analysis of Desulfurization and Denitrification Effect of Activated Carbon Fiber Modified by Low Temperature Plasma

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**Abstract:** The surface of activated carbon fibers was modified by discharge plasma. the adsorption and catalysis of SO<sub>2</sub> and NO on activated carbon fibers were enhanced by changing the chemical functional groups of activated carbon fibers. the trend of SO<sub>2</sub> adsorption per unit time of activated carbon fibers before and after modification was discussed. During the modification process, the specific surface area and the pore volume of the activated carbon fiber are significantly increased, which helps to improve the adsorption performance of the activated carbon fiber. Under the action of physical adsorption and chemical adsorption, the modified activated carbon fiber has improved the effect of desulfurization and denitrification. the test results show that 8kV is the best modified voltage. After modification, the desulfurization and denitrification effect is obviously improved. the SO<sub>2</sub> removal rate is increased from 90% to 95%, and the NO removal rate is increased from 35% to 60%.

**Key words:** Low Temperature Plasma; Activated Carbon Fiber; Desulfurization and Denitrification

## 1 INTRODUCTION

Low temperature plasma modification technology is to generate a large number of charged particles, excited state particles, photons, free radicals and other plasmas through corona discharge in a gas medium, and utilize these high energy plasmas to impact the surface of materials [1]. Activated carbon fiber is a

new type of porous adsorption material, and its micropores are uniformly distributed on the surface of the fiber. Compared with activated carbon, activated carbon fiber has small and uniform pore diameter, simple structure, fast adsorption rate for small molecular substances, high adsorption rate and easy desorption. Activated carbon fibers have large specific surface area and abundant micropores, with micropore volume accounting for more than 90% of the total pore volume [2]. Activated carbon fibers have greater adsorption capacity and faster adsorption kinetics than granular activated carbon. All along, the researchers have explored various modification methods to increase the specific surface area of activated carbon fibers and enhance the activity of surface functional groups in order to improve the adsorption performance of activated carbon fibers [3]. Activated carbon fiber is used for desulfurization. It not only has the above-mentioned congenital advantages, but also can recover sulfur resources through the regeneration of activated carbon fibers while controlling atmospheric pollution. In this experiment, low temperature plasma modification technology was used to further study the desulfurization and simultaneous desulfurization and denitrification of modified activated carbon fiber on the basis of desulfurization of modified activated carbon fiber.

## 2 RESEARCH EXPERIMENT

### 2.1 Instruments and raw materials

Table 1 Activated carbon fiber index

Model	Specific surface area/m <sup>2</sup> g	Benzene absorption/(%)	Iodine absorption value/(mg/g)	Hole volume/(ml/g)	mean pore size/A	pH value	ignition point/°C
SY-1500	1500-1600	50-55	1400-1600	0.7-1.5	18-23	5-7	>500

Smoke detector, glass rotameter, BGG DC high voltage generator, GZ-100/20 silicon rectifier high voltage control cabinet. CTP-2000K plasma discharge

power supply; DBD-50 low temperature plasma discharge device; modified activated carbon fibers were analyzed and characterized by SAM X-ray

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photoelectron spectrometer and Nicolet 5700 Fourier transform infrared spectrometer.

SY-1500 activated carbon fiber produced by an activated carbon fiber factory used in the modification experiment has various indexes as shown in Table 1.

## 2.2 Experimental method

The activated carbon fiber is cut into square sheets of  $1\text{cm}\times 1\text{cm}$ , then placed in a beaker, washed with distilled water for 3-4 times, soaked for 3h, and then placed in an ultrasonic instrument for 2h to remove organic and inorganic impurities remaining in the activated carbon fiber. Adjust N flow to  $10\text{mL}/\text{min}$ , add high voltage power supply (5kV), and perform DBD plasma surface modification. The discharge modification device consists of needle plate electrode and applied DC high voltage. The iron plate at the bottom of the reactor is used as grounding electrode. During discharge, the activated carbon fiber is evenly spread on the bottom of the reactor, and the discharge time is controlled to be 2min. Air is pumped into the system by an exhaust fan, while  $\text{SO}_2$  is pumped into the system by a cylinder under the action of pressure difference. The  $\text{SO}_2$  concentration in the simulated flue gas is regulated by adjusting the  $\text{SO}_2$  flow rate at the cylinder outlet, and the air flow rate from the exhaust fan is controlled to control the velocity of the flue gas passing through the reactor. At the same time, the white hunger flow rate at the cylinder outlet is adjusted to simulate the concentration of each gas component in the flue gas. The gas flow passes through the glass rotor flowmeter and enters the organic glass reactor filled with activated carbon fibers. In the reactor, activated carbon fibers absorb  $\text{SO}_2$  and  $\text{NO}$ , and the purified flue gas is discharged into the atmosphere.

## 3 TEST RESULTS AND DISCUSSION

### 3.1 Penetration curves of ACF denitration modified by different voltages

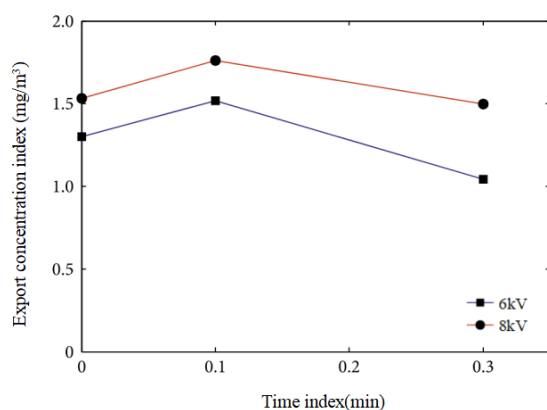


Figure 1 Punch-through koji for ACF denitration under different voltage modification conditions

The experimental conditions are set as follows:  $\text{NO}$  inlet concentration is  $300\text{mg}/\text{m}^3$ , oxygen concentration is 10%,  $W/Q = 3.5\text{ g. min}/\text{L}/\text{L}$  (ratio of

activated carbon fiber mass to flue gas flow), discharge time is uniformly determined as 6 min, discharge voltage is 6kV, 8kV and 8 kV under the same conditions, and the obtained penetration curve is shown in Figure 1.

After plasma surface modification for 0, 20, 40 and 80min with an output power of 130W, the ignition loss rate of activated carbon fiber gradually increased with the increase of plasma modification time, reaching 15.3%, 24.5% and 50.1% respectively. After modification, the specific surface area and pore volume of ACF are slightly reduced, but the change is not obvious, indicating that the surface structure of ACF has not been significantly changed by low temperature plasma modification. The sulfur adsorption capacity of activated carbon fiber increases with the increase of discharge modification voltage per unit time. From 5 to 8 kV, the adsorption rate of activated carbon fibers increased the fastest. Then, with the increase of discharge voltage, the sulfur adsorption rate of activated carbon fibers changed little, and gradually became stable. Compared with that before modification, the denitrification performance of the modified activated carbon fibers has been improved to varying degrees. The initial denitrification efficiency of the modified activated carbon fibers is 52% before modification, and the initial denitrification efficiency of the modified activated carbon fibers can be increased to 74% after 8 kV modification. Carbon gasification and etching on the surface of activated carbon resulted in loss of weight and burning of activated carbon fibers. With the prolongation of modification time, the etching effect caused by plasma increases, and the burnout rate increases gradually.

### 3.2 NO adsorption curves modified by different voltages

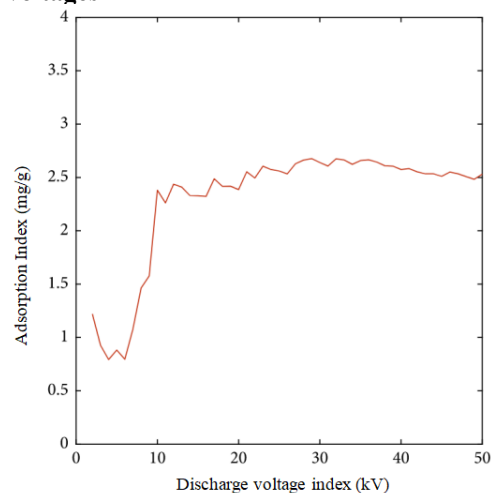


Figure 2  $\text{NO}$  adsorption curves after different voltage modification

The curves of  $\text{NO}$  adsorption amount after different voltage modification are shown in Figure 2. The

experimental conditions are the same as those of the above penetration experiment. the adsorption time is set to 50 minutes.

Generally speaking, basic functional groups have good affinity for SO<sub>2</sub>. the oxygen-containing functional groups on ACF surface are mainly divided into acidic basic functional groups and neutral functional groups, wherein the acidic functional groups include carboxyl and phenolic hydroxyl groups; Compared with the unmodified ACF, the longitudinal stripes on the surface of the ACF modified by low temperature plasma are thickened and deepened, and the surface becomes rough. the results show that low temperature plasma modification has no destructive effect on ACF surface structure. With the increase of discharge voltage, the basic functional groups on the surface of activated carbon fiber gradually increase and the acidic functional groups gradually decrease, but the total amount basically remains unchanged. the decreasing and increasing trends of acid-base functional groups are basically the same. Compared with the adsorption capacity of 18.6 mg/g of activated carbon fiber under unmodified conditions, it was increased by 75%. This result directly shows that the activated carbon fiber after modification has greatly improved the adsorption capacity of NO. This is mainly because the solid surface of the activated carbon fiber has an unsaturated structure and has unique surface chemical properties. the free radical generated by the modification process oxidizes the surface group of the activated carbon fiber, changes the morphology and distribution of the oxygen-containing functional group, and improves the activated carbon fiber. Surface properties. the removal effect of ACF on NO<sub>2</sub> is much better than that of NO, because from the physical characteristics, NO<sub>2</sub> is more favorable for competing for active sites on the surface of activated carbon fibers, so that it is adsorbed.

### **3.3 Experiment on desulfurization and denitration of ACF after plasma modification**

Compared with the denitration experiment alone, the denitration efficiency of activated carbon fiber is significantly reduced when SO<sub>2</sub> is present under the same conditions. It can be seen that the presence of SO<sub>2</sub> is not conducive to NO removal. In addition, the etching effect of the activated carbon fiber in the modification process increases the number of micropores, increases the specific surface area, and improves the adsorption capacity of the activated carbon fiber. Plasma modified ACF can effectively introduce nitrogen-containing functional groups to its surface, and change the morphology distribution of oxygen-containing functional groups to a certain extent, thus greatly improving the basic groups and oxidation ability of ACF surface. Modification has an effect on the active center of the ACF surface, providing more catalyst center number or active site for the catalyst. the transmittance of the absorption peak in the infrared spectrum of the ACF surface

chemical functional group after discharge treatment is obviously higher than that of the undischarged-modified ACF. Polar molecules have stronger adsorption capacity than non-polar molecules and are dominant in the competition for active sites. Therefore, in the case of simultaneous desulfurization and denitrification, the denitration efficiency of the activated carbon fiber is lowered.

The performance of modified activated carbon fiber at the same time for desulfurization and denitrification has been greatly improved, mainly in the following: the breakthrough time of desulfurization after modification is further extended, and the desulfurization efficiency in the breakthrough time is improved [4]. the adsorption of activated carbon fiber is physical adsorption and chemical adsorption. Due to the introduction of a large amount of oxygen in the modification process, the acidic oxygen-containing functional groups of the activated carbon fiber surface increase, and the total acidic group increases. the discharge plasma can initiate the mutual transformation of the functional groups on the surface of the ACF and can introduce elements from the external environment into the surface of the ACF, but when the voltage is too high, the effective groups are decomposed. the modified ACF has a longer desorption time at the peak of the desorption peak, and the temperature at the peak of the desorption peak is higher than that of the unmodified one, indicating that higher desorption activation energy is required [5]. From the results of adsorption experiments and group analysis, we can know that the discharge voltage of about 8kv is a turning point for the modification of activated carbon fiber, so the activated carbon fiber samples with a discharge voltage of 8kV are taken for analysis. It is concluded that the denitration performance of activated carbon fiber has also been significantly improved. the denitration efficiency has been increased from 25%-35% before modification to 60% after modification. the outlet concentration of NO after modification is stable compared with that before modification, and remains basically unchanged for 50 minutes.

When the surface of ACF is modified by discharge plasma, the plasma acts on the surface of the sample and etches the ACF surface while introducing new groups. Different discharge times affect the range and depth of reaction on the one hand, and the type of reaction on the other hand [6]. After modification, there is no new characteristic peak in the functional group region, the absorption peak of the functional group is strengthened, and the acidic oxygen-containing functional group is increased, which can improve the NH<sub>3</sub> adsorption capacity on the ACF surface. the surface of the unmodified activated carbon fiber has a few attachments. Although the specific composition is not clear, it is known through analysis that the carbon fiber may be generated during the activation process. the surface of the activated

carbon fiber contains active groups important for desulfurization and denitrification, such as hydroxyl, ether, carboxyl, etc., while the discharge plasma-modified activated carbon fiber can further introduce a large number of oxygen-containing nitrogen-containing functional groups to the surface [7]. the increase of the acidic group will increase the surface polarity of the activated carbon fiber, which is beneficial to the adsorption of polar substances by the activated carbon fiber. As the modification time increases, the amount of nitrogen introduced will increase, and the nitrogen-containing functional groups formed on the surface of the ACF will continue to increase until the oxygen content of the ACF surface is consumed [8]. As the temperature rises, some functional groups on the surface of the ACF decompose, the surface-active sites decrease, and the catalytic activity begins to decrease. the number and type of surface functional groups of the unmodified sample were small, and the conversion rate of NO was lower than that of the modified sample.

#### 4 CONCLUSIONS

ACF has large specific surface area and contains oxygen and nitrogen functional groups. the discharge plasma treatment of ACF can effectively introduce nitrogen-containing functional groups to its surface and change the morphology and distribution of oxygen-containing functional groups. Before and after plasma modification, there is no obvious difference in pore volume and no obvious mechanical damage on the surface of ACF. Plasma modification only changes the surface properties of ACF, and has little effect on its pore structure and surface morphology. When the time of reaching the stable state is shorter, the adsorption capacity of activated carbon fibers modified by discharge increases greatly. the results show that the adsorption rate of activated carbon fibers by discharge modification is greatly increased. When activated carbon fiber is used for simultaneous desulfurization and denitration, the existence of SO<sub>2</sub> makes the denitration efficiency very low, and after modification, the defect of too low denitration efficiency under the condition of simultaneous desulfurization and denitration can be obviously reduced, and the NO removal efficiency can be improved from 35% to 60% on the premise of promoting the sulfur dioxide removal efficiency; With the progress of modification, the oxygen-containing functional groups of activated carbon fiber increase, among which the acidic functional groups increase obviously and the basic functional groups decrease slightly, which increases the surface polarity of activated carbon fiber and is beneficial to the absorption of polar substances. Discharge time affects

the modification results. the surface active substance of ACF increases with the modification time, but increases slowly after 6min. Considering comprehensively, 4min or 8min is the best modified voltage.

#### FUND PROJECT

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# Exploration of Strategies for Cultivating Students' Core Literacy in High School Political Teaching

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**Abstract:** The concept of core literacy education clearly points out that modern education and teaching work must attach importance to cultivating students' key abilities and essential qualities to adapt to their own and social development, which points out the direction and lays the foundation for the development of modern education in China. This article provides a detailed analysis and in-depth exploration of how to cultivate students' core competencies in high school political teaching, with the aim of sharing and exchanging ideas with relevant teaching staff.

**Keywords:** High School Education; Political Teaching; Development Of Core Competencies; Effective Strategy

## 0. INTRODUCTION

Core literacy is the ability, spirit, quality, and ideology that students must possess, and is the supporting force for their future development. This further demonstrates the importance and necessity of cultivating students' core literacy. At present, there are many obstacles that affect the development of students' core competencies in high school political teaching, mainly including the teaching ideas and methods practiced by teachers. This requires teachers to comprehensively carry out teaching reform work with the focus on cultivating core competencies. High school political literacy includes aspects such as political identity, rule of law awareness, scientific spirit, and public participation. Each political literacy has a huge impact on students' future development. Teachers need to deeply understand the importance of their own responsibilities, and in carrying out political discipline teaching activities, open up a direct path for students to develop core competencies.

## 1. THE SIGNIFICANCE OF CULTIVATING STUDENTS' POLITICAL CORE LITERACY

Doing a good job in cultivating students' core competencies in high school political teaching is of great significance for the development of modern education and students' future development. The specific analysis is as follows: firstly, it can ensure the scientific and adaptive nature of high school political

subject teaching. Teaching is not just about imparting knowledge to students, but also about teaching them the principles and methods of being a person and doing things, so that they can become useful talents for the country and society. Therefore, cultivating students' core competencies in high school political teaching is very in line with the requirements of modern education and teaching reform, which undoubtedly enhances the success of education in China. Secondly, core competencies are the basic abilities that students must develop. A political teaching system built around core competencies is conducive to building a springboard for students to adapt to their own and social development [1]. Taking political identity literacy as an example, students develop an emotional and conscious sense of belonging in social and political life, which can help them understand their responsibilities and obligations, and prepare them to become qualified socialist builders and successors. From the above, it can be seen that the basic idea of cultivating students' core literacy in high school politics has played a crucial role in the development of education and talent cultivation.

## 2. THE RESISTANCE TO CULTIVATING STUDENTS' CORE LITERACY IN HIGH SCHOOL POLITICAL TEACHING

### 2.1 Resistance from teaching ideas

Teaching ideology is the thinking consciousness of implementing teaching activities, which has significant guiding and constraining effects on setting teaching objectives, innovating teaching methods, and designing teaching content. At present, there is a problem of lagging teaching ideas in high school political education, mainly lagging behind the core literacy education ideas proposed by modern education development, which to some extent hinders the development process of students' subject literacy. For example, from the perspective of teaching objectives, it can be observed that some teachers have relatively narrow teaching thinking and only care about whether students can master the knowledge from books. Therefore, the established teaching objectives only apply to teaching work, and in this

case, it is difficult to inspire and guide the development of students' core competencies.

### 2.2 Resistance from teaching methods

Teaching method is a tool for presenting knowledge, serving as a bridge between students and knowledge. It is a scientific and adaptable teaching method that can endow teaching work with twice the result with half the effort [2]. At present, the teaching methods used by teachers in high school politics teaching are dull, monotonous, and tough, mainly manifested in the following aspects: some teachers believe that politics belongs to the category of humanities, and many theories, concepts, definitions, policies, and ideas need to be remembered by students. In practical teaching, students are often marked with key points, difficulties, and required points, and then are strongly required to memorize them. Students under this teaching method not only lack interest in learning and low learning efficiency, but also lose the conditions and awareness to develop core competencies, ultimately leading to students falling into the quagmire of "dead learning".

## 3. EFFECTIVE STRATEGIES FOR CULTIVATING STUDENTS' POLITICAL CORE LITERACY

In order to help students improve their core competencies in high school political teaching, advanced teaching ideas and scientific teaching methods must be used as support. Therefore, teachers should shoulder the heavy responsibility of enlightenment and guidance, and carry out a series of teaching reforms, aiming to build a quality-oriented political classroom for students.

### 3.1 Timely update teaching ideas and adjust teaching objectives

Teaching ideology, as the core element guiding teaching work, must meet the basic requirements of modern education reform in order to guide teachers in carrying out successful education and scientific teaching work. Based on the progressiveness of core literacy education, teachers should clarify the relationship between core literacy and student development, clarify the importance and necessity of cultivating students' core literacy, and adjust the existing teaching objectives to eliminate the drawbacks of traditional political teaching. For example, when adjusting teaching objectives, broaden one's horizons, find the right starting point, and coordinate the relationship between core competencies and political knowledge, so that students can develop their ability and literacy to adapt to their own and social development through political learning. Taking the teaching of "Only by adhering to and developing socialism with Chinese characteristics can we achieve the great rejuvenation of the Chinese nation" as an example, teachers need to establish two levels of teaching objectives. One is based on the knowledge points in the textbook, and the other is

based on political identity literacy. the two objectives complement and interact with each other. After students form political identity literacy, they can have a deeper understanding of the connotation of the development concept of socialism with Chinese characteristics, Better absorption of the spirit and ideas from political textbooks has played a positive and positive role in improving the quality of political teaching and developing students' political literacy.

### 3.2 Adhere to the student-centered concept and innovate teaching methods

The student-centered teaching philosophy advocates a clear understanding of students' subject learning status, requiring teachers to fully consider students' learning experiences and specific needs when designing and organizing teaching, aiming to ensure that teaching work has good adaptability and significantly improve the quality and efficiency of teaching. Under the concept of core literacy education, high school political teaching requires teachers to adhere to the principle of student centeredness and innovate teaching methods that meet the requirements of cultivating students' political subject literacy. For example, based on the textbook and based on students, create teaching scenarios to enable students to understand the political subject knowledge in the textbook and form corresponding political subject literacy through real and vivid situational experiences. Taking the teaching of the "Comprehensive Rule of Law" unit as an example, teachers use multimedia functions to create life scenes, mainly presenting illegal behaviors that occur in society and daily life in the form of videos to students, allowing them to have a close understanding of the importance of rule of law, the necessity of scientific legislation, and compliance with the law. Students in teaching situations who have a correct understanding of laws and regulations can promote the formation of their legal awareness and literacy, thereby helping them become excellent young people who know, understand, abide by, and use the law.

## 4. CONCLUSION

Political identity, awareness of the rule of law, scientific spirit, and public participation are the political core competencies that high school students must cultivate. This requires high school political teaching to build a teaching system supported by the development of core competencies, aiming to lay a solid foundation for the development of students' core competencies. the above text mainly proposes relatively reasonable teaching strategies from two directions: timely updating of teaching ideas and adjusting teaching objectives, adhering to the student-centered concept and innovating teaching methods. It is hoped that this can be helpful for the reform of high school political education.

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# Reform and Practice of The Teaching Mode Of "Five Component and Three Strength Integration" Of Aerobics Course Based on School-Enterprise Cooperative Education

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**Abstract:** China's basic education industry has diverse needs for aerobics major. the special aerobics courses in colleges and universities are the "mother" of training special aerobics teachers in primary and secondary schools, and also the cradle of training professionals in dance, art and sports training institutions outside schools and various fitness institutions. the learning results of aerobics courses have a direct bearing on the level of special aerobics teachers and the development of social characteristics. This paper analyzes the problems existing in the teaching and practice of calisthenics in Taishan College and puts forward corresponding countermeasures.

**Keywords:** Aerobics Course; Reform; Practice

## 1. THE QUESTION RAISED

1.1 The application of new media technology in aerobics teaching is not precise

The application of new media technology in college calisthenics teaching has been relatively popular, and its main application tool kit Including PPT, video, music, wechat and Weibo. New media technology can improve teaching interest, interaction and learning effect, but there are also some problems, such as lack of professional technical support and guidance, insufficient new media teaching resources and update not in time. In the future, the main development direction of the application of new media technology in college aerobics teaching should be multi-media, personalized, intelligent and interactive.

1.2 Fixed teaching content and single teaching mode  
In the teaching of aerobics, most of the teachers use fixed aerobics music and stylized sets to teach Unified teaching, the lack of innovation and change under the new media environment, students faced with such fixed teaching content, gradually lost their interest in aerobics courses.

1.3 Insufficient awareness of the change of teaching and learning concepts

In the teaching process, most students do not do active learning and do not realize themselves as students Subject status, lack of subjective initiative and innovative spirit, blindly passive acceptance, not good at thinking, finding problems and summarizing problems. Teachers find it difficult to guide students to take the initiative in learning.

1.4 Lack of simulation environment for school practice and training

As a fitness project with a relatively strong popularity, aerobics has a wide range of applications in schools and society. The school can set up clubs, gyms, dance rooms and other practice and training environments to provide fitness for other non-sports students, but also to provide sports students with a good opportunity to exercise.

1.5 The school-enterprise cooperative education model has not yet formed

Due to the characteristics of the aerobics project, its employment direction mostly involves fitness institutions, art training schools, etc. Schools should actively visit relevant institutions outside the school, discuss cooperation training models, let students go out, let enterprises come in, and establish collaborative training and common development models.

## 2. REFORM IDEAS

The final learning result of teaching should correspond with the goal of teaching and training, and the aerobics course should cultivate comprehensive applied talents who adapt to social development. Based on the "five component and three strength integration" model of school-enterprise collaborative education, teaching reform and practice are carried out from the five elements of "teaching objectives, teaching content, teaching methods, teaching evaluation and teaching platform" and the three strengths of "teaching and social practice ability, arrangement and competition ability, innovation and entrepreneurship ability".

## 3. SPECIFIC IMPLEMENTATION

The core of high-quality education is talent training, the core of talent training is curriculum, and the final manifestation of curriculum is the display of learning results. Based on the training of high-quality applied talents, follow the "student-oriented" to develop the teaching syllabus, improve the course content, change the teaching method, emphasize multiple evaluation and assessment system, and implement the high-quality development concept in the special aerobics course teaching.

### 3.1 Formulate curriculum teaching objectives according to graduation requirements

Combined with the special characteristics of aerobics and expert interviews, the teaching objectives are put forward from the aspects of political literacy, disciplinary literacy, teaching ability, education ability, development of innovation and entrepreneurship and reflection ability, communication and cooperation ability and management ability.

### 3.2 Establish a teaching content system of school-enterprise joint training for the purpose of practical ability training

Calisthenics teaching focuses on the acquisition of students' theoretical and practical ability for calisthenics projects, and chooses appropriate teaching content according to the premise of students' learning foundation and physical and mental development. Secondly, we should combine the social needs to enrich the understanding and learning of the aerobics students.

In the teaching of aerobics, various dancing contents such as national aerobics, aerobic dance, and equipment exercise are introduced into the aerobics course to meet the individual needs of the current versatile college students, and to formulate training programs that meet the needs of physical education teachers in basic education and dancing talents in the fitness industry. Students are trained to have a solid basic theory, knowledge and skills of aerobics, be initially competent for the teaching of aerobics in primary and secondary schools, have a certain ability of self-editing exercises, have a certain ability of aerobics research and organization of social practice, in order to meet the needs of physical education in primary and secondary schools for aerobics talents and off-campus training institutions and fitness industry for related talents.

From the perspective of professional teachers, school leaders support teachers to go out for exchange and study, constantly understand the frontier dynamics of professional development such as aerobics, find the real needs of the profession and talent output channels, improve the vision and ability of professional teachers, and strengthen the training of teachers' teaching ability, team training and management ability.

### 3.3 Build an online teaching platform, pay attention to the personalized development of students, and broaden the time and space of teaching

Teachers should pay attention to the use of a variety of scientific and effective methods and teaching methods to try more personalized teaching, through a variety of ways to understand the state of students and learning basis, according to the situation of students, real-time adjustment and optimization.

Teachers can adopt the video teaching method, record the aerobics teaching video before class and post it to the school online platform for students to watch. In the video, the teacher makes a detailed analysis and explanation of every movement detail of aerobics, so that the students can understand the key points of movements through repeated watching, and gradually improve the skills and difficulty of movements, so as to prepare for the practical class of aerobics. At the same time, it also mobilizes students' active participation in learning and stimulates students' autonomous learning ability. The combination of online and offline teaching methods and the use of new media for aerobics teaching can greatly expand the scope of teaching, realize distance learning, and adapt to and pay attention to the needs of students at different levels during teaching. At the same time, teaching in this way can release the personality characteristics of students, enhance the interaction and interest of teaching, so that students are more willing to participate in it, so as to obtain better teaching results.

### 3.4 Make full use of new media platforms to build a diversified teaching evaluation system

The OBE concept emphasizes students' final learning outcome output and mastery of independent learning ability. Course evaluation should be targeted and flexible, pay attention to the development and change of each student, and understand students' individual differences and individual needs. Under the premise that teachers are the main body of evaluation, students' self-evaluation and student mutual evaluation should be carried out, and self-evaluation and mutual evaluation mechanism should be established to promote sustainable development evaluation.

Both teachers and students should continue to learn and have current basic knowledge of educational technology and information technology. Students can give evaluation and suggestions on the quality and effect of classroom teaching through after-class feedback, so that teachers can learn the advantages and disadvantages of their own teaching in time and adjust their teaching methods and contents in a timely manner. At the same time, teachers can also use the new media platform to track and analyze the learning effect of students, and develop personalized teaching plans for different students, so as to achieve mutual evaluation between teachers and students, so as to better improve the teaching effect.

### 3.5 Establish a school-enterprise cooperation model and build an internship and training base

As people's teachers in the new era, teachers should give full play to their enthusiasm, initiative and

creativity in teaching work, pay attention to and strengthen their own social practice ability, and implement "social classroom" into all aspects of classroom teaching. Make full use of social resources, encourage schools and enterprises to jointly train students, let students go out, let enterprises come in, targeted training of social needs talents, create mutual help, common development model.

Schools can combine the characteristics of aerobics projects, set up gyms or fitness clubs, encourage students to start their own businesses, exercise students' social practice ability at the same time to provide non-sports students with ways to fitness, kill two birds with one stone, and enrich the extracurricular sports activities of college students have been a good supplement.

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# Analysis of the the Problems in Information Literacy Education in Universities under the Background of Engineering Education Professional Certification

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**Abstract:** In the new higher education environment, the construction and development of engineering education professional certification have put forward higher requirements and challenges for information literacy education in universities. There are still many problems in the information literacy education of universities for engineering education professional certification. This article analyzes the reasons for these problems from the perspectives of university libraries, universities and the government, in order to provide reference for the development of information literacy education in universities under the background of engineering education professional certification.

**Keywords:** Engineering Education Professional Certification; Information Literacy Education; Universities; University Libraries; Government

In the context of engineering education professional certification, facing the diverse and dynamic information ecological environment and new requirements for higher education development, how to focus on the development goals of universities, guided by new concepts, and regard information literacy as a series of continuous learning abilities, information practices, and thinking habits that run through students' lifelong learning and career, has become the primary task of information literacy education in universities. Although information literacy education in Chinese universities has been carried out for over a decade and has made certain progress, there are still many problems. the issue of information literacy education has not yet received sufficient attention from relevant departments.

## 1. AT THE SCHOOL LEVEL, UNIVERSITIES LACK AWARENESS OF COLLEGE STUDENTS' INFORMATION LITERACY.

Through investigation, it was found that many university management levels have insufficient awareness of information literacy education, and the implementation of information literacy education

teaching is just a formality. Firstly, some universities believe that information literacy education is about offering "literature information retrieval courses" or "computer information technology" to simplify information literacy education. Some vocational colleges have made information literacy education for college students an elective course, and even cancelled related courses. Secondly, some universities entrust the full responsibility of information literacy education to the library, without overall planning, organization and coordination, and providing resource guarantee for information literacy education, resulting in the university's information literacy education being left to the library alone, with a serious shortage of educational resources. Finally, although some universities have carried out some information literacy teaching reforms, they still have not formulated management mechanisms or rules and regulations related to information literacy education, resulting in a lack of policy guarantees for the implementation of information literacy education.

Carrying out information literacy education and cultivating the information literacy ability of college students is an important responsibility that higher education institutions cannot shirk, so it must be given sufficient attention. the academic affairs department should make overall planning, organization and coordination, and incorporate the level of information literacy ability into the school's evaluation system. Departments should strengthen the integration of professional courses and information literacy courses, and incorporate information literacy education into professional training programs. Libraries should actively organize various information literacy education activities, strengthen communication and cooperation with other educational entities, and create an educational force that includes the participation of librarians, professional course teachers, academic staff, and employers, in order to comprehensively and sustainably promote the deepening and improvement of information literacy education.

## **2. AT THE LIBRARY LEVEL, THERE ARE DEFICIENCIES IN THE CONSTRUCTION OF UNIVERSITY LIBRARIES THEMSELVES.**

As the main undertaker of information literacy education in universities, the library's own problems have also affected the degree to which university management attaches importance to information literacy education.

2.1 Firstly, there are deficiencies in the self construction of university libraries.

The abundant literature and information resources, advanced technological equipment, and favorable learning environment of university libraries provide a solid material guarantee for the smooth implementation of information literacy education in universities. However, through investigation, it was found that the current resource construction in universities is not yet perfect, which to some extent also affects the comprehensive implementation of information literacy education. One is to strengthen the resource construction of the library itself, including paper book resources, professional database resources, retrieval equipment resources, and spatial construction. Libraries not only need to optimize their collection of literature resources to provide literature support for the development of information literacy education, but also strengthen the construction and integration of digital resources, especially the integration of digital resources related to engineering education certification majors, in order to better meet the learning needs of engineering students' information literacy. The second is to strengthen resource co construction among universities. At present, information literacy education in various universities is basically in a separate state, and there is a lack of communication and cooperation between universities, which to some extent leads to the waste and imbalance of teaching resources. In fact, there are many similarities in the content and teaching models of information literacy education among universities, and it is entirely possible to optimize teaching resources by jointly building and sharing information literacy education platforms. The information literacy teaching platform can not only meet the needs of students' online learning courses, interactive communication with teachers, online exams, etc., but also provide teaching support for teachers, such as downloading resources, creating courseware, online courses, student Q&A. Therefore, strengthening the resource construction of university libraries can effectively ensure the orderly and high-quality implementation of information literacy teaching.

2.2 Secondly, the efforts of university libraries in promoting information literacy education are insufficient.

As the saying goes, even the aroma of wine fears the depth of the alley. University libraries should create various channels for marketing information literacy education and extend the depth and breadth of

publicity. In terms of publicity methods, the library can use the school's official website and the library's home page to publish news, and can also make full use of the social media platforms and tools preferred by college students, such as WeChat, Weibo, QQ, and other commonly used publicity channels, as well as the new media platforms favored by young people, such as Tiktok, Kwai, and Station B, as well as the learning power High usage apps and mini programs such as Super Star Learning Pass. By utilizing these popular promotional methods among college students, the exposure and dissemination effectiveness of information literacy education can be effectively enhanced. In terms of publicity methods, campus activities and major festivals can be utilized to coordinate information literacy education and publicity activities related to related themes, such as World Reading Day on April 23, Campus Culture Festival, Intellectual Property Promotion Month, etc. Attract more educational objects to pay attention to information literacy education through cultural activities.

2.3 Thirdly, the personal qualities of librarians need to be improved.

The construction of teaching staff is an important prerequisite and foundation for the effective organization and implementation of information literacy education. Through interviews with librarians, especially those who offer engineering information literacy courses, it was found that librarians are not very familiar with the certification requirements for engineering education majors and certification standards. Due to a lack of professional knowledge in engineering, librarians are not clear about which link and time period to integrate into embedded information literacy teaching. Therefore, librarians should strengthen their own learning and improve their professional qualities to ensure the teaching quality of information literacy education. On the one hand, librarians should not only possess high professional skills in library and information technology, good computer technology and foreign language proficiency, but also possess corresponding disciplinary and professional backgrounds. On the other hand, librarians also need to have high emotional intelligence and communication skills, and be able to establish good cooperative and interactive relationships with school management, academic departments, professional subject teachers, and college students. In addition, libraries should also strengthen communication with schools and incorporate the cultivation of information literacy education faculty into the school's talent development plan. Through on-the-job training, academic conferences, participation in teaching skills competitions, and other methods, information literacy teachers' knowledge level and teaching skills should be improved.



### **3. AT THE GOVERNMENT LEVEL, THE EDUCATION SECTOR LACKS CORRESPONDING POLICIES, REGULATIONS AND STANDARDS.**

At present, China has not established a regulatory department or research institution for information literacy education similar to the American Association of Universities and Research Libraries (ACRL), nor has unified information literacy policies, regulations, and implementation standards been introduced. the implementation of information literacy education in universities lacks mandatory and normative measures. Through interviews with librarians, it was found that many practical problems and difficulties encountered in carrying out information literacy education and teaching can be attributed to a lack of effective guidance and policy guidance from relevant departments. the long-term development of information literacy education in universities must rely on the guidance of relevant policies, systematic and scientific planning, and information literacy education standards suitable for China's national conditions as institutional guarantees. Firstly, the country should start from the top-level design and formulate relevant standards or systems for information literacy education based on China's national conditions and the current situation of university students' information literacy. the training objectives, educational models, curriculum settings, and evaluation indicators of information literacy education should be clearly defined, providing a reference program and effective plans and measures for the development of information literacy education in universities. Secondly, the state and education regulatory authorities should actively encourage and

guide universities to cooperate in forming a national information literacy education alliance, as a management and research institution to guide the development of information literacy education in Chinese universities. By formulating relevant policies, plans, standards, systems, etc., they should supervise and promote the innovation and development of information literacy education in universities.

Therefore, it is recommended that the country establish an information literacy education supervisory agency as soon as possible, effectively combine opinions from various aspects, and formulate information literacy ability standards and information literacy training plans that are suitable for China's national conditions, to ensure the standardized, systematic, and sustainable development of information literacy education in Chinese universities.

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# Analysis And Optimization of Cnc Machine Tool Processing Errors

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**Abstract:** Due to the advancement of technology, the usage area of CNC equipment is gradually increasing, and the requirements for its accuracy are also constantly improving. the popularization of CNC machine tools increases the probability of errors occurring during the production process. Through research on the machining process of CNC machine tools, the article analyzes the reasons for these problems and proposes corresponding solutions to these problems, thereby greatly improving the machining accuracy of CNC machine tools.

**Keywords:** CNC machine tool machining error analysis and optimization measures

## QUOTE

CNC machine tools are a type of mechanical processing equipment that can effectively process complex, accurate, diverse, and small batch workpieces. In the actual processing process, due to various factors, CNC machine tools may produce certain processing errors, which can affect the quality of workpiece processing and lead to errors in the processed products. This has a significant impact on the company's economic benefits and future development.

## 1ANALYSIS OF MACHINING ERRORS IN CNC MACHINE TOOLS

### 1.1 EQUIPMENT ITSELF ERROR

The servo system plays a very important role in CNC machine tools, transforming the received instructions into actions of the machine tool's executing mechanism. As the end of CNC machine tools, the working status of servo systems not only affects the efficiency of machining, but also has significant potential errors during the working process. the main factor causing this error is the insufficient machining accuracy of the machine tool itself. There are many components of CNC machine tools, most of which are manually operated. During the operation process, if the staff operates improperly or randomly, it may lead to machining errors. In addition, due to the different accuracy requirements of different machine tools and equipment, once incorrect assembly occurs, machining errors will inevitably occur. For example, for the manufacturing of steel balls, it needs to be

higher than the manufacturing of pens. If the components of steel ball machine tools and pen machine tools are mixed together, machining errors will occur [1].

### 1.2 EQUIPMENT OPERATION

Firstly, in the operation of CNC machine tools, due to the movement and stationarity of the coordinate axis, the driving axis of the machine tool will undergo an acceleration and deceleration process. During this process, due to the working inertia of the equipment and the increase or decrease in driving speed, there is a high possibility of machining errors. Moreover, due to the presence of certain pores between the components in the transmission shaft, it is easy to experience transmission pauses, resulting in machining errors of the machine; Secondly, the operation of CNC machine tools requires continuous and reliable current. If intermittent or unstable phenomena occur during processing, it will cause current pulsation in the machine tool, thereby affecting the continuity and stability of the machine tool, and easily causing processing errors; Finally, if there are conditions such as oblique angles and arcs at the cutting edge of CNC machine tools, it will affect cutting accuracy and cause machining errors.

### 1.3 EQUIPMENT WEAR AND TEAR

Firstly, during the operation process of the machine tool, the ball screw will generate significant heat due to long-term operation, resulting in a change in the shape of the ball screw. Moreover, with the extension of working time, the accuracy of the screw will also decrease, leading to transmission errors; Secondly, due to various factors such as vibration and dust, the measurement accuracy will decrease. After the equipment works for a period of time, the temperature will gradually rise. If there is no cooling or effective cooling treatment, it will affect the normal operation of the equipment, resulting in errors; Finally, in CNC machine tools, different parts should be processed and different cutting tools should be selected. Among various cutting tools, turning tools are the most severely worn. When working at high temperatures, the tools will wear and deform, which will have an adverse impact on the processing quality.

## 2. OPTIMIZATION MEASURES FOR MACHINING ERRORS OF CNC MACHINE TOOLS

### 2.1 ENHANCE DEVICE EFFICIENCY AND ACCURACY

In the context of digital manufacturing, in order to improve machining accuracy, it is necessary to make timely improvements to its process. Due to the rapid development of China's national economy and the rapid development of China's mechanical manufacturing industry, the requirements for machine tool accuracy are becoming increasingly high, and the various performance of CNC machine tools are gradually becoming perfect. For example, the high-end hydraulic fully digital CNC machine tools developed in recent years have introduced digital technology to reduce errors caused by acceleration and deceleration during the transmission process. In addition, the design of the lathe equipped with this type of machine tool has also been improved, which improves the load-bearing capacity and the accuracy of the guide rail, reduces the self weight of the lathe, strengthens the vibration and torsion efficiency of the lathe, and ensures the stability of the lathe's operation. At the same time, it also adopts standardized design to ensure processing quality [2].

### 2.2 CORRECTING SERVO SYSTEM ERRORS

The servo system is the driving force that drives the operation of various coordinate systems. For each CNC machine tool, the servo system sets various processing paths to ensure the machining flexibility of the CNC machine tool, thereby achieving 0.1  $\mu$  Accuracy requirements for m. the servo system can control the cutting speed and amplitude of the cutting tool to a certain extent, and can flexibly adjust the torque of the driving device. Therefore, correcting the error of the servo system can help strengthen the accuracy of CNC machine tool processing. In order to improve the performance of the servo system, it is necessary to optimize its components, discard aging components, and reconstruct high-performance and high-quality components. Because the servo system can also perform arc machining, the arc machining process is a very complicated process, which requires the operator to choose appropriate control methods for the servo system based on the specific processing situation to reduce machining errors.

### 2.3 ERROR COMPENSATION

In specific processing, the probability of such errors occurring should be minimized as much as possible, and error compensation should also be carried out. the error compensation method is to set a close compensation value in advance based on the error value, in order to reduce the amplitude of the error and achieve scientific control of the error. On CNC machine tools, a compensation value method can be used to solve problems such as tool tip wear error and pulse transformation error. By compensating for errors and minimizing them, high-precision

machining of parts has been achieved. the error compensation values for different models of CNC machine tools should be different. Based on the actual machining process budget of the equipment, appropriate compensation values can be set to minimize the adverse effects generated in the actual production process. By optimizing the machining environment of the machine tool and programming, the compensation value for errors can be accurately determined.

### 2.4 IMPROVE MAINTENANCE OF EQUIPMENT

Due to the long working hours and high utilization rate of CNC machine tools, it is inevitable that some equipment will experience aging and wear. Standardized use and daily maintenance can reduce equipment wear, extend equipment service life, and ensure equipment processing accuracy. To strengthen the maintenance and upkeep of machine tool equipment, it is necessary to have high professional quality and knowledge of equipment maintenance. It is necessary to be able to carry out daily maintenance of equipment according to the maintenance procedures of the machine tool, regularly monitor the operation status of the equipment, and monitor processing control in real-time. Especially in processing operations, frontline employees must have a license, a certain sense of responsibility and work enthusiasm, and be proficient in using machinery and equipment. This is beneficial for reducing processing errors caused by manual operations [3].

## 3 CONCLUSION

Due to factors such as setting issues, operation issues, wear issues, and system coding errors in the machine tool equipment itself, errors occur at every stage of machine tool processing. This requires relevant technical personnel to be responsible for handling CNC machine tool processing work, and to be familiar with and proficient in it. According to the detailed research concept of detailed problems, by improving equipment efficiency and compensating for errors Pay attention to methods such as machine tool equipment maintenance to prevent machining errors and ensure the machining accuracy and quality of CNC machine tools.

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# The Development Status and Countermeasures of WeChat Public Platform Services in University Libraries

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**Abstract:** With the continuous development of the times and the increasing progress of scientific and technological levels, China has now entered the era of big data and the Internet. In the current context of the Internet era, many fields have been favored by the information age, and university libraries are no exception. With the support of the Internet, university libraries have launched WeChat public platform services, which can provide readers with a modern reading experience, improve reading efficiency, and reduce reading costs. Nowadays, it has been widely popularized in university libraries. Based on this, this article takes the WeChat public platform services of university libraries as the theme, conducts discussions and research, analyzes the advantages, current situation, content, and current published content of the application of WeChat public platform services in university libraries, explores substantive measures to optimize the WeChat public platform services of university libraries, and studies the development trend of future WeChat public platform services in university libraries.

**Keywords:** Universities; Library; Wechat Public Platform Services; Development Status; Countermeasure

## INTRODUCTION

The WeChat public platform service of university libraries refers to a way in which university libraries use the WeChat public platform to provide library related services to users. With the rapid development of mobile internet, WeChat has become one of the indispensable tools in people's daily lives. University libraries are also actively using WeChat public platforms to expand service channels and improve user experience.

### 1. ADVANTAGES OF APPLYING WECHAT PUBLIC PLATFORM SERVICES IN UNIVERSITY LIBRARIES

#### 1.1 Provide convenient library services

Through the WeChat public platform, university libraries can provide convenient library services, including querying information such as library

opening time, borrowing rules, and library location. Users can access the required library service information anytime and anywhere through the WeChat public platform, without having to go to the library site or search through other channels.

#### 1.2 Realizing Library Resource Sharing

University libraries can share library resources through the WeChat public platform, including e-books, journal papers, academic databases, etc. Users can read or download the required library resources online through the WeChat public platform, improving the utilization and sharing efficiency of library resources [1].

#### 1.3 Provide personalized book recommendation services

Through the WeChat public platform, university libraries can provide personalized book recommendation services based on users' reading interests and borrowing records. Users can obtain book recommendations related to their interests through the WeChat public platform, improving their reading experience and satisfaction.

#### 1.4 Promoting interactive communication between libraries and users

Through the WeChat public platform, university libraries can engage in interactive communication with users, including user questioning, feedback, and participation in library activities. Users can have real-time interactive communication with the library through the WeChat public platform, improving their participation and satisfaction with the library.

#### 1.5 Expand the influence and visibility of the library

Through the WeChat public platform, university libraries can expand their influence and visibility. By publishing news updates, academic activities, reader sharing, and other content of the library, it has attracted more user attention and participation, and improved the library's visibility and influence. At the same time, users can share the content of the library through the WeChat public platform, further expanding the influence of the library.

### 2. THE ROLE OF WECHAT PUBLIC PLATFORM SERVICES IN UNIVERSITY LIBRARIES

### 2.1 Information transmission and push

University libraries can push the latest information, activity notifications, and collection resource recommendations of the library to users through the WeChat public platform. This real-time information transmission method can better meet the needs of users, improve their participation and utilization rate.

### 2.2 Electronic Resource Services

University libraries can provide electronic resource retrieval, borrowing, and downloading services through the WeChat public platform. Users can easily search and obtain the required electronic resources through the WeChat public platform, improving the convenience and efficiency of resource utilization.

### 2.3 Online consultation and reference consultation

University libraries can provide online consultation services through the WeChat public platform. Users can consult with the library about related issues through the WeChat platform, and library staff can reply and answer in a timely manner. This online consultation service can provide more personalized and convenient consultation methods, improving user satisfaction and experience [2].

### 2.4 Interactive communication and community construction

University libraries can establish a library user community through the WeChat public platform, where users can communicate, share reading experiences, and ask questions. Libraries can also interact with users through communities to understand their needs and provide services that are more tailored to their needs.

### 2.5 Popular Science Education and Cultural Promotion

University libraries can carry out science education and cultural promotion activities through the WeChat public platform, such as holding online lectures, exhibitions, and book sharing. This approach can expand the influence and visibility of the library, increase user awareness and participation in the library.

## 3. THE DEVELOPMENT STATUS OF WECHAT PUBLIC PLATFORM SERVICES IN UNIVERSITY LIBRARIES

At present, the WeChat public platform services of university libraries have achieved certain development results. Firstly, university libraries provide users with basic information such as library opening time, borrowing rules, and in-library navigation through the WeChat public platform, making it easy for users to keep track of the library's operations at any time. Secondly, university libraries also use the WeChat public platform to push information such as library new book recommendations and notices of internal activities, allowing users to stay up-to-date with the latest developments in the library. In addition, university libraries have also established online consultation services, where users can consult with the library

through the WeChat public platform and receive timely answers to their questions [3].

However, there are still some problems and challenges in the development of WeChat public platform services in university libraries. Firstly, due to the large scale and numerous user groups of university libraries, how to effectively manage and operate the WeChat public platform has become a challenge. Secondly, due to the functional limitations of the WeChat public platform, university libraries still have certain limitations in providing advanced services such as online reservation and renewal. In addition, users' awareness and utilization of the WeChat public platform services in university libraries still need to be improved, and it is necessary to strengthen publicity and promotion work. In order to further develop the WeChat public platform services of university libraries, the following measures can be taken.

Firstly, university libraries can strengthen cooperation with WeChat public platforms, strive for more functional permissions, and provide more convenient services. Secondly, university libraries can strengthen user education and increase users' awareness and utilization of WeChat public platform services. In addition, university libraries can also improve the quality and level of WeChat public platform services by collaborating with other university libraries, sharing resources and experiences.

In short, the WeChat public platform services of university libraries have made certain achievements in development, but still face some problems and challenges. By strengthening cooperation, improving user education, and collaborating with other university libraries, we can further promote the development of WeChat public platform services in university libraries and enhance user experience.

## 4. THE CONTENT THAT CAN BE PROVIDED BY THE WECHAT PUBLIC PLATFORM SERVICE OF UNIVERSITY LIBRARIES

### 4.1 Introduction to Library Resources

The WeChat public platform of university libraries can provide an introduction to library resources, including collections of books, journals, newspapers, electronic resources, etc. Users can learn about the library's collection situation through the platform, making it convenient to search for the required academic materials [4].

### 4.2 Library Activity Notification

University libraries often hold various academic lectures, book sharing meetings, exhibitions, and other activities. The WeChat public platform can promptly publish notices and details of these activities. Users can learn about the latest library activities through the platform, participate in them, and broaden their academic horizons.

### 4.3 Library Service Guide

The WeChat public platform of university libraries can provide library service guidelines, including

opening time, borrowing rules, booking seats, self-service book borrowing and returning, etc. Users can understand the library's service processes and regulations through the platform, making it convenient to use various library services.

#### 4.4 Academic Resource Recommendation

The WeChat public platform of university libraries can recommend some high-quality academic resources, including academic journals, academic databases, academic papers, etc. Users can learn about the latest academic resource recommendations through the platform, facilitating academic research and paper writing.

#### 4.5 Library FAQ

The WeChat public platform of university libraries can provide answers to common questions, including how to search for books, how to use electronic resources, and how to book seats. Users can obtain answers through the platform to solve problems they encounter while using the library.

### 5. SPECIFIC PROBLEMS IN THE CURRENT WECHAT PUBLIC PLATFORM SERVICES OF UNIVERSITY LIBRARIES

#### 5.1 Lack of interactivity

The WeChat public platform of university libraries is usually only used to publish notices, activity information, etc., lacking interaction with readers. Readers often have to passively receive information and are unable to ask questions, participate in discussions, or provide feedback.

#### 5.2 Single content

Most of the WeChat public platforms in university libraries focus on recommending new books and activities within the library, lacking diversified content. Readers may also be interested in other content related to learning and reading, but it is difficult to find relevant information on the WeChat public platform.

#### 5.3 Delayed information updates

Some university libraries' WeChat public platforms do not update information in a timely manner, resulting in readers not being able to keep up with the latest library activities, resources, etc. This may affect readers' trust in the library and its frequency of use.

#### 5.4 Lack of personalized recommendations

The WeChat public platform of university libraries usually only sends some information in bulk to all readers, lacking personalized recommendations. Readers have different reading interests and needs. If recommendations can be made based on the personalized needs of readers, it will better meet their reading needs.

#### 5.5 Limited service functionality

At present, the service functions of WeChat public platforms in most university libraries are relatively limited, and can only provide some basic library query, appointment and other functions. If more service functions can be added, such as online reading,

electronic resource access, etc., it will improve the user experience and satisfaction of readers.

### 6. SUBSTANTIVE MEASURES TO OPTIMIZE THE WECHAT PUBLIC PLATFORM SERVICES OF UNIVERSITY LIBRARIES

#### 6.1 Strengthen interactive communication

As mentioned above, the current WeChat public platform in universities lacks user interactivity. At this stage, optimization should focus on strengthening interactive communication. In this regard, a two-way communication channel can be established with users to encourage them to provide opinions and suggestions. By setting up online consultation windows, conducting reader surveys, and other methods, we can understand user needs and feedback, solve problems in a timely manner, and improve services.

#### 6.2 Strengthen the openness of digital resources

Currently, there is a situation of single content on the WeChat public platform of university libraries. In this regard, the digital resources of university libraries can be integrated onto the WeChat public platform to provide online reading and download services. More academic resources and knowledge support can be provided to users through digital libraries, electronic journal databases, and other means.

#### 6.3 Timely update book content

As mentioned above, there is currently a situation where the WeChat public platform services of university libraries are not updated in a timely manner, resulting in readers being unable to read the latest reading resources in a timely manner. In this regard, university libraries need to take reform and optimization measures, strengthen the book volume of WeChat public platforms, and meet the needs of a large number of university readers. For example, internet services can be established between universities to exchange and share their book libraries, achieving diversification and enrichment of book content.

#### 6.4 Provide personalized recommendations

The readers in universities include freshmen to seniors, as well as young and middle-aged teachers, with significant differences in age. At the same time, due to differences in personality, each person may also have different favorite book categories. Therefore, if the WeChat public platform services of university libraries cannot provide personalized book recommendations based on the age and reading preferences of each reader, it will be difficult for readers to use them frequently. In this regard, the WeChat public platform of university libraries can recommend book resources that meet users' needs by analyzing their borrowing records, search history, and interest preferences. Machine learning algorithms and recommendation system technologies can be utilized to continuously optimize recommendation results and improve user satisfaction [5].

#### 6.5 Expand the service functions of WeChat public platform

Currently, the service functions of WeChat public platforms in university libraries are limited and cannot meet the needs of readers. In this regard, the WeChat public platform of university libraries should expand its service functions. For example, online borrowing services can be provided, and through the WeChat public platform, users can easily book books online, check borrowing status, and learn about expiration reminders and other information in advance. At the same time, it can provide e-book borrowing services, making it convenient for users to read anytime, anywhere.

#### 6.6 Strengthen user education and training

Through the WeChat public platform, user education and training related content can be provided, such as library usage guides, literature retrieval techniques, etc. This is very helpful for college students studying on campus, as they can easily complete many professional assignments. In addition, the WeChat public platform of university libraries can also transmit knowledge and skills to users through various forms such as text, pictures, videos, etc., such as operation guides, excerpts of golden sentences, etc., in order to improve users' information literacy and library utilization ability.

#### 6.7 Improve user feedback mechanism

Finally, the WeChat public platform of university libraries can also improve the user feedback mechanism, timely collect suggestions and opinions from readers and users on the current WeChat public platform services, improve and optimize the shortcomings of current services, improve user satisfaction and experience, and thus improve the quality of library services.

### **7. THE DEVELOPMENT TREND OF WECHAT PUBLIC PLATFORM SERVICES IN FUTURE UNIVERSITY LIBRARIES**

#### 7.1 Open sharing of digital resources

In the future, the WeChat public platform of university libraries will gradually open up more digital resources, including e-books, electronic journals, academic papers, etc. Users can read, download, and share these resources online through the WeChat public platform, improving resource utilization and sharing efficiency.

#### 7.2 Mobile Library Services

With the popularization of mobile internet in the future, the WeChat public platform of university libraries will provide more mobile library services, such as online reservation of library seats, inquiry of

library opening hours, reminders for borrowing books, etc., making it convenient for users to access library services anytime and anywhere [6].

#### 7.3 Education and training services

In the future, the WeChat public platform of university libraries will not only be a library service platform, but also provide more education and training services, such as academic writing guidance, research method training, etc., to help users improve their academic ability and research level.

### **8 CONCLUSION**

In summary, the development status of WeChat public platform services in university libraries is gradually becoming mature. By applying the WeChat public platform in university libraries, readers can expand their reading volume, facilitate borrowing and reading, strengthen communication and sharing between people, and make reading an advanced form of online activity on the internet. In this regard, university libraries should fully value the role and advantages of WeChat public platforms, keep up with the development trend of the times, and continuously optimize and reform the current problems. Only in this way can the WeChat public platform of university libraries develop in the long run and provide a solid reading guarantee for the vast number of university readers.

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# Exploring the Teaching Practice of Computer Application Fundamentals in Higher Vocational Education by Integrating Curriculum Ideology and Politics

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**Abstract:** The current socio-economic development is very rapid, and the development of information technology is advancing rapidly. At the same time, the demand for information technology talents in society is also increasing. In talent cultivation, education plays an important role, and moral education is the fundamental aspect of talent cultivation. Vocational colleges are an important component of universities, and computers are the basic courses for various majors in vocational colleges. The foundation of computer application in vocational colleges is an important link in carrying out ideological and political courses. This article analyzes the purpose of integrating ideological and political education into courses, and proposes the implementation of ideological and political education in basic computer application teaching, in order to cultivate professional talents with good values and information literacy.

**Keywords:** Fundamentals of Computer Application in Higher Vocational Education; Teaching Practice; Course Ideology and Politics

At present, the construction of curriculum ideological and political education has been integrated into various universities, and vocational colleges have also recognized the importance of curriculum ideological and political education. They have promoted the integration of curriculum ideological and political education in different courses and majors, and have made good progress. In vocational colleges, the teaching of computer application fundamentals is an open basic course with a wide range of characteristics [1]. To integrate ideological and political education into this course, it is necessary to combine the characteristics of the course and the situation of students to seek the correct mode of ideological and political education integration, in order to promote the construction of ideological and political education in computer application basic courses and improve teaching quality.

## 1. THE PURPOSE OF INTEGRATING BASIC COMPUTER APPLICATION TEACHING INTO CURRICULUM IDEOLOGICAL AND POLITICAL EDUCATION IN HIGHER VOCATIONAL EDUCATION

During the construction of ideological and political courses in vocational colleges, the essence is to integrate corresponding values into the teaching of professional knowledge, so that students can master relevant knowledge well and absorb and digest the ideological and political content of the courses. Computer Application Fundamentals is a public basic course that needs to be integrated into the reform of ideological and political education. It is necessary to analyze the characteristics of the course and understand the specific situation of students to ensure that the following teaching objectives are achieved. Firstly, the computer foundation course has the characteristics of strong practicality and high practicality. It contains a lot of knowledge content and is also a skill that students must master in their future job positions, with distinct professional characteristics. Actively integrating ideological and political education into computer basic applications can cultivate students' professional spirit and gradually form a good work attitude, which has a positive impact on their career after entering society. Secondly, vocational college freshmen are the main group facing the curriculum. Many freshmen need to adapt to the learning and life rhythm of vocational colleges for a period of time after entering the school, which inevitably leads to more confusion. In addition, there are also a few students who lack self-control, have a lazy style, and even some students are addicted to the internet, which is not conducive to the healthy development of students [2]. For vocational college freshmen, the cultivation of good learning habits plays an important role in their learning career. Actively integrating ideological and political education into the curriculum can help students establish their learning goals correctly, improve their quality, and thus make the foundation of information technology knowledge and technology more solid. Once again, the content

involved in computer foundation courses is very extensive, but there is no need to delve deeper. Integrating ideological and political courses into basic computer applications can use historical and traditional ideological and political materials to connect multiple and complex knowledge points, thereby enriching teaching content and stimulating students' interest in learning. This can improve their learning efficiency, and also help students establish a sense of national pride and self-improvement aspirations. Finally, schools are an important environment for students to grow up in their lives. Relying solely on ideological and political courses to carry out ideological and political education is far from enough. It is also necessary to fully implement and integrate ideological and political courses into students' learning careers in vocational colleges, ensuring that all possible effects of joint education can be achieved, improving the education pattern of vocational colleges, and making them sustainable and systematic.

## **2. THE IMPLEMENTATION OF CURRICULUM IDEOLOGICAL AND POLITICAL EDUCATION IN COMPUTER BASIC TEACHING IN HIGHER VOCATIONAL EDUCATION**

### **2.1 INTEGRATING TEACHING OBJECTIVES INTO CURRICULUM IDEOLOGICAL AND POLITICAL EDUCATION**

The previous teaching goal of computer application foundation teaching was to improve students' understanding of information technology and master commonly used information technology, related tools and software, so that they can effectively solve some problems through information technology means. The teaching implementation of this course is closely related to the course objectives, and traditional teaching objectives are prone to a lack of attention to education and a focus on knowledge education. Therefore, in the reform of integrating ideological and political education into the curriculum, it is necessary to take the curriculum objectives as the starting point and integrate ideological and political education into the teaching objectives. Only by clarifying relevant goals can we promote the smooth implementation of ideological and political integration in the curriculum. When integrating ideological and political education into basic computer application courses, it is necessary to analyze the characteristics and background of vocational education in the course, and analyze the purpose of ideological and political education. Based on this, it is necessary to determine the goals of ideological and political education such as abiding by laws and loving the motherland, and cultivate professional spirits such as collectivism, diligence, bravery, innovation, and enterprising spirit. At the same time, it is also necessary to cultivate students' learning interests and abilities. In addition, in

vocational colleges, the teaching of computer basic applications should be aimed at all students, so it is also necessary to fully reflect the professional attributes of ideological and political education.

### **2.2 THE INTEGRATION OF IDEOLOGICAL AND POLITICAL EDUCATION INTO THE CURRICULUM IN THE TEACHING CONTENT**

Integrating ideological and political education into basic computer application courses requires both determining the teaching content and clarifying the content of ideological and political education. Based on actual work analysis, the teaching content of computer fundamentals can be divided into the following points: computer fundamentals, commonly used software and operating systems, document processing, data processing, and presentation production. To integrate ideological and political education into the above content, it is necessary to clarify the requirements of ideological and political education, that is, to achieve the goal of educating people. Therefore, the ideological and political education curriculum should include the following aspects: professional spirit cultivation, patriotism, moral cultivation, humanistic qualities, and legal education. Based on the above content, it is actively proposed to integrate ideological and political elements into the curriculum after fully considering the scope of integration. Not all teaching content must incorporate ideological and political elements, but rather integrate ideological and political elements into knowledge points, and combine practical needs to arrange course knowledge points reasonably. In addition, analyze the content associated with the knowledge points [3]. For example, events, characters, knowledge points, etc. involved in historical development can be analyzed to understand learning methods, ways of thinking, and values. In the teaching of knowledge points, ideological and political elements can be integrated through citation and embedding methods to play an important role.

### **2.3 INTEGRATION OF IDEOLOGICAL AND POLITICAL EDUCATION INTO THE CURRICULUM DURING THE TEACHING PROCESS**

With the rapid development of information technology, the current society has entered the era of "Internet plus" and new media. Most of the contemporary college students are post 00s, who have distinctive personality and active thinking. Therefore, the integration of curriculum ideology and politics into the basic computer application curriculum needs to fully consider the situation of students and understand their expression methods and preferences. In the course, ideological and political elements with contemporary characteristics and positive energy can be integrated through both online and offline aspects, in order to achieve the purpose of moral education. Throughout the entire education process, the content of ideological and political education should not be

singular. Specific case stories should be included and problem-oriented to guide student group discussions. Interesting classes can also be held to showcase ideological and political elements in ways that students enjoy, thereby increasing students' interest and improving educational effectiveness.

### 3. CONCLUSION

To integrate ideological and political education into the curriculum comprehensively based on computer applications, it is necessary to reform and innovate educational concepts. By effectively promoting the integration of ideological and political education into the curriculum, it can not only promote the improvement of students' skill levels, but also enhance their ideological level. In practical teaching, it is necessary to continuously improve relevant issues through experience accumulation. At the same time, teachers also need to pay attention to their own words and actions, continuously improve their cultivation and ideological consciousness, only in this way can they better implement curriculum ideological and

political education, and lay a solid foundation for every step of students' future development.

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# International Communication of Chinese History and Culture from the Perspective of Cross-cultural Communication

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**Abstract:** In the era of globalization, the international dissemination of Chinese history and culture has become increasingly important from the perspective of cross-cultural communication. China is a country with a long history and rich traditional culture. The inheritance of history and culture not only carries national identity and pride, but also demonstrates its influence on the international stage. China's historical and cultural heritage has unique values and philosophy, and has provided profound historical wisdom and cultural wealth to the international community. In the era of global connectivity, the international dissemination of history and culture is not only a key element of China's international image, but also an important component of cultural diversity and cross-cultural exchange. Through in-depth research and discussion, we hope to find the most effective way to convey the essence of Chinese history and culture to international audiences, and promote the coexistence and sharing of diverse cultures.

**Keywords:** Cross-Cultural; Dissemination; China; History And Culture; International Communication

## INTRODUCTION

As the country with the longest history and rich cultural traditions in the world, China has numerous valuable historical and cultural resources. China's historical and cultural heritage has been passed down for thousands of years, encompassing various aspects such as ancient philosophy, literature, art, architecture, and traditional customs. These cultural elements not only reflect China's uniqueness, but also have profound connections with global culture. Cross-cultural communication emphasizes mutual communication and understanding between different cultures, involving multiple factors such as language, cultural differences, media choices, and communication strategies. In the era of increasing information influx and exchange, it is crucial to explore how to spread Chinese history and culture on a global scale. Relevant departments need to understand the needs and habits of audiences of different nationalities, as well as how to adapt and

meet their needs. It is the key to successfully spreading Chinese history and culture.

## 1. ABOUT CROSS-CULTURAL COMMUNICATION

Cross-cultural communication refers to the exchange, dissemination, and interaction of culture between different regions, mainly involving various media, technologies, and forms of communication, as well as interactions at the national, social, and individual levels. Cross-cultural communication emphasizes the resonance, conflict, interaction, and adaptation between cultures, paying attention to the importance of cultural diversity, while international communication particularly emphasizes the process of information and cultural elements spreading on the international stage.

The international dissemination of Chinese history and culture includes cultural elements from ancient and modern Chinese historical periods, such as literature, philosophy, art, religion, traditional medicine, and values with Chinese characteristics, achieved through various means such as literary works, movies, music, art exhibitions, and academic exchanges. In this process, the main emphasis is on the interaction and learning between different cultures, which may lead to misunderstandings among the audience due to cultural differences. Therefore, in the process of cultural dissemination, it is necessary to pay attention to how to make the audience or society accept and adapt to new cultural elements. In short, cross-cultural communication is a complex and diverse field that involves the dissemination and interaction of multiple cultural elements. Against the backdrop of the international dissemination of Chinese history and culture, under the concept of cross-cultural communication, the international dissemination of Chinese history and culture helps the international community better understand cultural diversity and enrich the philosophical connotations of China's history and culture, thereby enhancing China's influence in international exchanges.

## 2 THE CHARACTERISTICS OF CHINESE HISTORY AND CULTURE

### 2.1 The cultural heritage is vast and profound

China's historical and cultural heritage is known for its vast and profound cultural heritage, which can be traced back thousands of years to ancient history. From the bronze culture of the Xia, Shang, and Zhou dynasties to the unified empire of the Qin and Han dynasties, to the cultural prosperity of different dynasties such as Tang, Song, Yuan, Ming, and Qing, China's historical and cultural heritage is rich and colorful. After long-term historical inheritance, it has laid a solid foundation for Chinese culture and provided rich stories and materials for international dissemination.

In terms of cultural elements, China's history and culture cover multiple aspects such as language, religion, philosophy, art, architecture, music, food, clothing, etc. These elements reflect various aspects of China's history and culture from multiple dimensions. For example, Chinese calligraphy art is famous for its unique composition of Chinese characters and strokes, with an extremely rich variety of font types, and each font has its unique charm.

For example, China's culinary culture is also quite colorful. In the documentary "China on the Tongue" of Chinese culinary culture, with a relaxed narrative and exquisite visuals, it introduces the culinary culture of various parts of China to audiences around the world, as well as the dietary habits and unique foods of different regions due to factors such as geography and climate. Based on daily dietary experience the dietary habits reflect the survival wisdom of the working people in China and the unique Eastern values of the Chinese people. These diverse cultural elements provide endless creative inspiration and interactive opportunities for international communication.

Chinese history and culture have had a positive impact on international communication. Firstly, Chinese films, TV dramas, and literary works, as well as cultural products, have enabled many international audiences to gain a deeper understanding of Chinese culture through Chinese historical works and thus become interested in China. Secondly, history and culture provide a philosophical and moral foundation for China's foreign policy, while also endowing China with a unique voice on the international stage.

### 2.2 Diversity and Inheritance

China is a multi-ethnic country composed of 56 ethnic groups, including the Han, Tibetan, Uyghur, Mongolian, etc. Each ethnic group has its own unique language, religion, customs, and cultural traditions. The existence of these diverse cultures makes China a cultural treasure trove, which integrates various different traditions and values, and also provides endless possibilities for the international dissemination of Chinese history and culture.

The cultural diversity of China is also reflected in the cultural inheritance of different historical periods. The inheritance of different philosophical and ideological traditions such as Confucianism, Taoism, and Buddhism has shown durability and continuity in the international dissemination of Chinese history and culture, attracting scholars and cultural enthusiasts from all over the world.

The cultural diversity and inheritance of China are also reflected in traditional folk art. China has a wealth of traditional arts, such as Peking Opera, acrobatics, calligraphy, painting, etc. These art forms have been inherited in Chinese history and culture, and have continuously evolved and innovated in different historical periods, showcasing the richness and diversity of Chinese culture, while also providing attractive cultural products for international dissemination. In terms of international communication, the diversity and inheritance of Chinese history and culture provide China with a powerful cultural soft power. For example, China's Spring Festival celebration has become a grand celebration around the world, attracting people from all over the world to participate and promoting international cultural exchange.

### 2.3 The Influence of Confucianism

The purpose of Confucianism mainly emphasizes the moral responsibility of the family, society, and government. Its core principles include benevolence, propriety, loyalty, shame, filial piety, etc. These principles not only shape the moral and ethical views of the Chinese people, but also deeply affect the international dissemination of Chinese history and culture. Firstly, the moral ethics of Confucian culture emphasize the harmonious relationship between individuals and society, encouraging people to treat others with kindness and etiquette, and pursuing moral and noble conduct. In international communication, China has always upheld the concept of peace, established a positive image in its international status, and has had a profound impact on some other countries.

In addition, through academic research, education, and cultural exchange activities, Confucianism has had a wide impact worldwide. Many international research institutions, universities, and cultural centers have Confucian research projects to promote the research and dissemination of Confucianism. Confucius Institutes (International Chinese Language Education Institutions) have been established in multiple countries and regions around the world, dedicated to the understanding of Chinese language and culture among people in various regions around the world. At the same time, it also lays a solid foundation for China to establish friendly relations with countries around the world.

In short, the moral values, political system, foreign policy, educational system, and social culture of Confucian culture have all provided unique

characteristics for the international dissemination of Chinese culture, giving China a positive image and influence on the international stage. By deeply understanding the influence of Confucianism, we can better understand the international dissemination of Chinese history and culture, and promote mutual understanding and cooperation between different cultures.

#### 2.4 Inheritance of Traditional Art

Traditional Chinese art includes various fields such as painting, calligraphy, and opera, which play a crucial role in international cultural exchange. Among them, Chinese painting, as one of the representatives of traditional Chinese art, has a history of thousands of years. Chinese painting emphasizes the use of strokes, lines, and colors to express emotions and artistic conception. From ancient landscape painting to flower and bird painting, Chinese painting has inherited thousands of years of skills and aesthetics, showcasing new charm on the international stage. Chinese calligraphy is another cultural treasure of our country, emphasizing the strength, speed, and rhythm of strokes to express the beauty of words. Chinese calligraphy works often incorporate philosophy and poetry, and have unique aesthetic value.

At the same time, the inheritance of Chinese calligraphy has been achieved through continuous innovation. Modern calligraphers not only inherit traditional techniques, but also create new artistic styles in the international calligraphy industry. the international dissemination of Chinese calligraphy plays a bridging role in cultural exchange, allowing more people to understand Chinese characters and culture.

The inheritance of traditional art plays a crucial role in shaping China's cultural soft power, representing the depth and wisdom of Chinese culture and attracting audiences from all over the world. the international dissemination of traditional Chinese art helps to strengthen the international community's understanding of Chinese culture and establish a positive image of China on the international stage, which has a positive impact on China's international exchanges, diplomacy, and cultural exchanges.

### 3 THE INTERNATIONAL INFLUENCE OF CHINESE HISTORY AND CULTURE

#### 3.1 The Rise of Cultural Soft Power

The international dissemination of Chinese history and culture is a manifestation of the rise of Chinese cultural soft power. Cultural soft power refers to the country's influence on other countries through cultural industries, values, and other means, in order to maintain the country's image and rights, and safeguard national interests.

Firstly, traditional Chinese cultural elements such as literature, opera, and traditional Chinese medicine have been recognized and favored by the international community, becoming a hot topic, creating favorable

conditions for the rise of Chinese cultural soft power. the international dissemination of Chinese history and culture has enhanced its international influence, attracted audiences and scholars from around the world, deepened understanding and understanding of China, and enabled China to have more discourse in the international community, Can be used to promote international exchange and cooperation, and formulate international rules.

In addition, the international dissemination of Chinese history and culture is conducive to enhancing the international image and status. the purpose and spirit of traditional Chinese culture are mainly manifested in harmony, balance, and respect. By disseminating this purpose and spirit, we aim to create a good national image and emphasize the importance of peaceful development, dialogue among civilizations, and cultural inclusiveness. the dissemination of Chinese history and culture is not only a manifestation of culture, but also a tool for diplomatic activities and economic exchange and cooperation. Through cultural exchange activities, art exhibitions, and other activities, good diplomatic relations are established with other countries, laying the foundation for international mutually beneficial cooperation. At the same time, the development of China's cultural industry in the international community has created good opportunities for promoting China's economic development [1].

Finally, the international dissemination of Chinese history and culture has strengthened the competitiveness of China's cultural industry, laying the foundation for promoting stable, healthy, and sustainable development of the cultural industry. It has not only received attention from the international community, but also provided impetus for the prosperity and development of the domestic cultural industry, enhanced its strength, and made the rise and development of China's cultural soft power a continuous process, Promoting tolerance and cooperation among the international community towards diverse cultures has also provided strong driving support for China's sustainable development.

#### 3.2 Promote cultural exchange between China and foreign countries

Cultural exchange has had a profound impact on the international dissemination of Chinese history, including the dissemination of cultural elements, the inheritance of cultural values, and the exchange and integration of Chinese culture. the international dissemination of Chinese history and culture promotes China's traditional values, such as harmony and friendship, to the global community, which is conducive to achieving cross-border and cross-cultural understanding, avoiding cultural conflicts, providing support for the international community to eliminate cultural differences, and enriching the diversity of international culture. Chinese traditional cultural elements, including tea culture, calligraphy

culture, etc., have generated strong interest in the international community, providing opportunities for countries around the world to understand different cultures, and are extremely important for promoting balanced cultural development and harmonious development worldwide.

In addition, the international dissemination of Chinese history and culture has given impetus to the development of traditional Chinese culture in social development, such as Chinese Kung Fu and Tai Chi, which have been recognized by the international community and have become an important part of people's daily lives. This has given vitality to the development of Chinese history and culture, and has had a certain impact on the global society as a whole. The international dissemination of Chinese history and culture has promoted the exchange and cooperation between international cultures, not only promoting the dissemination of Chinese culture internationally, but also gradually integrating international culture into China, promoting the exchange, learning, and integration of Chinese and foreign cultures. The philosophical ideas in traditional Chinese culture, such as the unity of heaven and man, provide ideological guidance and unique conceptual support for global environmental protection issues, emphasizing more on natural balance, social balance, harmonious and healthy development, and have had a profound impact on the global response to climate change, poverty, and war issues.

### 3.3 Tourism and the Revitalization of Historical and Cultural Heritage

The international dissemination of Chinese history and culture has had a positive impact on the revitalization of tourism and historical and cultural heritage. This impact is not only reflected in economic development, but also in promoting the effective protection and inheritance of cultural heritage, and promoting the prosperity and development of the tourism industry. China has a long history and rich cultural heritage, such as the Great Wall and the Forbidden City. These cultural heritages are witnesses of China's history and culture, and are also cultural treasures of the world. In the process of international dissemination of Chinese history and culture, an increasing number of groups are interested in Chinese historical and cultural heritage, which promotes the effective protection of cultural heritage and promotes the inheritance of historical and cultural heritage in relevant industries.

Measures taken by governments, social organizations, and others to promote the preservation and effective restoration of historical and cultural heritage can attract more tourists. The dissemination of Chinese historical and cultural heritage is conducive to the protection of cultural heritage, making it a witness to historical development. Chinese historical and cultural heritage has been favored by international tourists, and this tourism trend has generated huge economic

benefits and social value worldwide and nationwide. The Chinese government has provided relevant support and convenience measures in actively promoting the development of the tourism industry, becoming a driving force for economic development. Favorable ways to increase employment opportunities.

In addition, the international dissemination of Chinese history and culture not only better protects cultural heritage, but also receives economic support, promotes cultural exchange, and in the process of tourism, learning about Chinese history and culture can be spread to more groups. The development of the tourism industry has created conditions for cross-cultural exchange and interaction. The exchange and interaction between international tourists and Chinese residents has eliminated cultural barriers, promoted international communication and cooperation, and is conducive to establishing interpersonal relationships and promoting civilized dialogue. So, Chinese history and culture have had a great impact on the revitalization of tourism and historical and cultural heritage in international dissemination, laying the foundation for national economic growth and international cultural exchange, and providing support.

### 3.4 The Revitalization of the Cultural Industry

Chinese history and culture have a high international social status and have received attention from researchers. The revival of the cultural industry is also an extremely important aspect, which has been reflected in multiple industry fields in the international community, demonstrating the diversity, diversity, innovation, and creativity of Chinese culture. Firstly, movies and TV dramas in the cultural industry have a high reputation in the international market, such as "Kung Fu", "Crouching Tiger, Hidden Dragon", and "Wandering Earth", which have attracted a large audience and injected vitality into the international dissemination and development of Chinese history and culture.

In addition, Chinese literary works provide opportunities for international readers to understand Chinese culture through translation and publication. In terms of cultural innovation, exchange, and integration, virtual technology is applied to cultural inheritance and protection. The integration of traditional Chinese elements in some games can enhance the attractiveness of Chinese culture. In the context of cultural industry revitalization, it eliminates the cultural impact on promoting China's economic development and communication between countries, Created opportunities for cultural diversity development, cooperation and exchange.

## 4 THE INTERNATIONAL DISSEMINATION OF CHINESE HISTORY AND CULTURE

The international dissemination of Chinese history and culture began during the ancient Silk Road era, when China was a hub for the exchange of Eastern and Western cultures. Silk, tea, ceramics, and other

materials were spread to other countries in Asia and Europe. During this period, material culture achieved better dissemination, while religious and philosophical cultures were also spread, especially Buddhism, Taoism, and other religions spread from China to other countries, Has had a profound impact on local culture.

In the development of modern Chinese history, the international dissemination of Chinese history and culture has been influenced by the political environment and historical events. At the end of the 19th century, China was invaded by foreign powers and suffered trauma to the country. However, Chinese culture, such as calligraphy and literature, still received international inheritance and development, and Chinese cultural elements such as kung fu and tea ceremony also received attention from the international community. In the early 20th century, the Xinhai Revolution overthrew the feudal system and brought the country into the era of democratic revolution. During this period, the international dissemination of Chinese history and culture was mainly reflected in political, social, and ideological dissemination. Mao Zedong Thought in China had a huge influence internationally and attracted the attention of the international community.

However, after the establishment of the People's Republic of China, the international dissemination of history and culture was interfered with and restricted by political factors, and the relationship between China and Western countries became tense. After the reform and opening up, Chinese culture gradually spread to the international community, and the rise of cultural industries such as literature, music, and film has received attention and recognition from the international community. Chinese history and culture, calligraphy, painting, and other cultures have been recognized and studied by society, and are also extremely important factors in the international dissemination of Chinese history and culture. Chinese is one of the most widely used languages, and the writing of Chinese characters requires a certain level of proficiency. Chinese character writing has a unique charm, beauty, and connotation, so learning Chinese and understanding Chinese culture have become a popular trend in the international community. Chinese language teaching has been rapidly developed globally, making more and more foreigners learn and love Chinese language and culture [2].

The international dissemination of Chinese history and culture relies on modern advanced technology and media platforms to make information dissemination and exchange more efficient and convenient. Chinese history and culture are disseminated to the world through online media, and the Chinese cultural industry promotes music and movies in the international field through modern advanced technology.

Finally, the international dissemination of Chinese history and culture is closely related to cultural confidence and innovation. the Chinese government vigorously advocates cultural confidence and innovation, actively inheriting, disseminating, and developing traditional Chinese culture. the innovative and creative industries of culture organically combine traditional culture and modern elements to create products with international influence.

In short, the process of international dissemination of Chinese history and culture has been rich and colorful, influenced by political, historical, linguistic, and technological factors. the dissemination of Chinese history and culture has revitalized globally, ushering in good opportunities and challenges, reflecting the connotation and charm of Chinese history and culture, creating favorable conditions and environment for cross-cultural communication, and accumulating rich experience. It can be seen that with the rise of China's international status, the international dissemination of Chinese history and culture has become an important component of global cultural exchange.

## **5 AN EFFECTIVE PATH FOR THE INTERNATIONAL DISSEMINATION OF CHINESE HISTORY AND CULTURE FROM THE PERSPECTIVE OF CROSS CULTURAL COMMUNICATION**

### **5.1 Choose diversified communication media**

Diversified media have played an important role in the international dissemination of Chinese history and culture, not only increasing the audience group, but also meeting the needs of different cultures and audience groups. For example, some books, newspapers, and magazines may publish Chinese and English versions of books, such as "Chinese Cultural History" or "Silk Road: From China to Rome", which can deepen readers' understanding of Chinese history and culture.

Digital media such as blogs and websites have created favorable conditions for the international dissemination of Chinese history and culture, such as the National History Museum website, the China Cultural Heritage Protection Foundation, and the Digital Culture Resource Library. These are typical cases of using digital media to disseminate Chinese history and culture.

Social media has achieved breakthrough development and has been recognized and used by international audiences. For example, the National Museum and the Palace Museum shared pictures and videos related to Chinese history and culture on Facebook and Twitter, attracting the attention of the audience.

In addition, at the opening ceremony of the 2008 Beijing Olympics, the display of Chinese history and culture was equally unforgettable, engraved in the hearts of audiences around the world. By watching impressive dances, music, and performances, audiences can understand China's millennium history



and feel its historical and cultural charm. This is also a manifestation of diversified media dissemination of Chinese history and culture.

The Online Museum of Chinese History and Culture is a manifestation of the dissemination of Chinese history and culture through diversified media. The online exhibition at the Palace Museum presents the culture of China's feudal era to international audiences. Any audience can browse cultural relics and learn about history through the Internet, and break through regional limitations through the use of the Internet and digital media, providing a cultural experience for global audiences [3].

So, diversified media have created favorable conditions for the international dissemination of Chinese history and culture, providing more opportunities to break through the limitations of time, space, and cultural language barriers, which is conducive to promoting cultural exchange, strengthening international awareness, and enhancing the influence of Chinese history and culture.

### 5.2 Customize content based on audience needs

In the current context of cultural communication and exchange among different countries and ethnic groups in the world, customizing relevant content based on audience needs has become an aspect that needs to be paid attention to and valued in the dissemination of Chinese history and culture. It is necessary to understand the cultural needs, interest needs, and knowledge levels of different audience groups and develop specific communication channels and content. Firstly, understand the needs of the international audience, including cultural background, interests and hobbies. For example, American audiences may be more interested in Chinese literature, while some Asian audiences may pay more attention to traditional Chinese handicrafts. After understanding the needs of international audiences, they can develop the necessary content, such as art exhibitions, documentaries, or using new media to publish images or videos, to ensure that the content is highly attractive. In the context of the development of digital and social media, social media accounts can be created, Sharing Chinese culture with international audiences through online platforms is beneficial for expanding the audience. In addition, in order to ensure that different ethnic groups have a correct understanding of Chinese history and culture, China should provide translation or voice commentary to avoid language barriers.

Strengthening international cooperation is also important, such as establishing connections with foreign museum academic exchange institutions and artists, jointly customizing specific historical and cultural dissemination content, jointly establishing cultural exchange activities and exhibition activities, and promoting cultural exchange. For example, cultural exchange between China and France [4]. Chinese history and culture are highly popular in France, especially Beijing Opera, calligraphy, tea

culture, etc. In order to meet the needs of the French audience, China can cooperate with French cultural and educational institutions to hold traditional art performances, exhibitions, etc. This will help the French audience to have a more comprehensive and in-depth understanding of Chinese history and culture, and also enhance the friendship between China and France.

Therefore, customizing content based on the needs of international audience groups requires attention in the international dissemination of Chinese history and culture. Based on diversified needs, China can more efficiently spread history and culture to the world, promoting cultural exchange between cultures.

### 5.3 Fully Utilize Traditional Chinese Festivals

Making full use of traditional festivals in China is an effective means to promote the international dissemination of Chinese history and culture. By doing so, China can showcase its historical development, cultural characteristics, traditional customs, etc. to the world, and attract more audience groups.

For example, the Spring Festival is one of the most important traditional festivals in China. In order to promote the international dissemination of Chinese history and culture, some celebration activities can be held, including traditional dance, music performance activities, and traditional food display and tasting activities. The activities can be held in influential cities or cultural exchange centers, attracting international tourists and local people to participate.

For example, some foreign cities hold Spring Festival celebrations locally, attracting a large number of people to watch parade activities, fireworks performances, traditional cultural performances, etc. This not only helps local people understand Chinese culture, but also attracts tourists from all over the world.

China can also hold traditional festival themed exhibitions at the International Cultural Center to showcase the diversity of Chinese history and culture to international audiences. The activities can involve traditional culture in different regions of China, such as painting, clothing, and other aspects. The British Museum once held a Chinese Spring Festival exhibition, showcasing the history, food, and crafts of the festival, attracting local residents to learn and love Chinese history and culture.

Our country's historical and cultural traditions are closely related to food, and we can promote traditional cuisine at international food festival exhibitions. For example, it can promote the traditional food dumplings, rice dumpling, etc. during the Spring Festival. At the French International Food Exhibition, Chinese catering enterprises showed the world the traditional food, which was recognized and loved by international audience groups, making the audience groups more comprehensively understand the relationship between Chinese culture and food.

In addition, China can organize academic exchanges and cultural exchange activities to promote cultural exchange, which can spread traditional Chinese culture to the international community and enrich Chinese culture. By doing so, we can build a country and society with international influence, laying the foundation and paving the way for cross-cultural exchange.

#### 5.4 Produce multilingual historical and cultural documentaries

Producing multilingual historical and cultural documentaries is a more effective tool that can be applied to the international dissemination of Chinese history and culture. Documentary production can vividly present China's history and culture, and gain the favor of global audiences through multilingualism. Firstly, the production of multilingual historical and cultural documentaries requires topic selection and planning, as well as writing scripts and post production for voice translation. Therefore, efforts should be made to increase publicity and promotion. In terms of topic planning, it is necessary to ensure that the topic is highly attractive and also take into account the language used by the audience, so as to cover different countries and regions.

For example, China produces a large-scale documentary called "The Grand History of China", which reflects the development of Chinese culture against the backdrop of China's millennium history. the production team discusses and exchanges each theme of the documentary and writes detailed scripts, travels to various places to shoot historical relics, expert interviews, etc. Through careful production, the documentary's characteristics are added and the content is enriched [5].

In order to better influence the international audience, a multilingual version was produced, including English, French, Arabic, etc. Through the large-scale promotion of "The Great History of China", it can be displayed on television media online platforms and other platforms, attracting global audiences, organizing cultural exchange activities, producing literary documentaries, developing promotion plans, and enhancing international influence, reflecting the importance of producing multilingual historical and cultural documentaries. Not only does it vividly showcase Chinese history and culture, but it also attracts global attention through different language versions, promotes cultural communication and exchange, and provides strong support for the international dissemination of Chinese history and culture.

#### 5.5 Expanding Audience Range Based on Short Video Platforms

The dissemination of Chinese history and culture through short video platforms is a relatively high-quality and efficient channel for international audiences. the short video platform has a large number of users, such as Kwai, Tiktok and YouTube, which

provide powerful communication platforms and channels. In these platforms, short videos can be shot and music can be produced to present Chinese history and culture. These short videos and music have entertainment and educational effects. For example, the creator of a certain video created historical content on the evolution of ancient Chinese clothing, which attracted young audiences to learn and love Chinese history by showcasing the changes in clothing from different dynasties. Adopting this creative approach has strengthened its appeal and also made Chinese history and culture recognized and accepted by international audiences.

In order to ensure the understanding of the international audience, video producers can provide translations, such as producing video content on ancient cultures and providing translations in multiple languages such as English and French. Regardless of the language used in daily communication, the audience can understand the content in the video. In addition, local culture can also be integrated into the international dissemination of Chinese history and culture, which can enrich the content of videos and enhance their attractiveness. For example, videos about traditional Chinese cuisine can be produced, and then compared with other countries' cuisine, which helps the audience better experience and understand Chinese culture and connect with the ethnic culture of their own country.

Video producers can also integrate current popular elements into Chinese history and culture based on the current development trend, so as to attract more audience groups. For example, on the Tiktok platform, they can produce videos showing their own national traditional dances, which can attract audiences.

Strengthening cooperation with international video producers and bloggers is an effective way to promote the international dissemination of Chinese history and culture. For example, Chinese video producers can collaborate with bloggers from other countries to introduce Chinese history and culture. Adopting this cooperation approach can make other countries' audience groups pay attention to Chinese history and culture and establish interaction, attracting audiences to join the cultural exchange group.

By adopting various channels and ways, Chinese history and culture can be spread to a wider range. Some cultural lovers have produced video content on platforms such as Tiktok and Kwai to introduce Chinese traditional festival culture, works of art, historical heritage, etc. to the world, gathering tens of thousands of viewers to watch, creating opportunities for international audiences to deeply understand Chinese history and culture, the application of short video platforms in the international dissemination of Chinese history and culture has played an important role, generating strong attraction and influence. It is a channel with good development prospects, which is conducive to enhancing the influence of Chinese

history and culture and promoting exchange and interaction between international cultures [6].

## 6. CONCLUSION

In summary, the international dissemination of Chinese history and culture from the perspective of cross-cultural communication has received global and societal attention and attention. It is necessary to understand the characteristics of Chinese history and culture, including the profound and diverse cultural heritage, the influence of Confucianism, and the inheritance of traditional art. We should recognize the international influence of Chinese history and culture, including the rise of cultural soft power, the promotion of cultural exchanges between China and foreign countries, the revitalization of tourism and historical and cultural heritage, and the revival of the cultural industry. We should seek effective ways to promote the international dissemination of Chinese history and culture from the perspective of cross-cultural communication, such as selecting diversified media, customizing content based on audience needs, fully utilizing traditional Chinese festivals, producing multilingual historical and cultural documentaries, and expanding the audience range based on short video platforms, in order to strengthen the dissemination and inheritance of Chinese history and culture on a larger scale and in more fields.

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# The Value Implication and Realization Path of University Precision Funding from the Perspective of Big Data

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**Abstract:** Along with the improvement and optimization of China's funding policy, universities have explored the way and path to better implement the funding policy, and with the continuous development of information technology, big data technology is precisely an effective way to help colleges and universities to achieve precise funding, and gradually promoted and applied in college funding management. Based on the perspective of big data, by analyzing the value implication and the situation of precision funding in colleges and universities, this paper further proposes the realization path of precision funding in colleges and universities from the perspective of big data, which can effectively realize the accurate identification, classification and dynamic management of funding objects.

**Keywords:** Big data; Precise funding; Value implication

## 1 INTRODUCTIONS

As our country fully enters the era of the Internet and big data, big data is not only an innovative technology, but also a new way of thinking. It not only changes people's lifestyles, but also has a huge impact on college education, especially in the management of university funding, big data technology can be applied to solve many problems. Therefore, it is of great significance to study the value implications and implementation paths of precise funding for universities under the perspective of big data. It will help promote the development of precise funding management for universities and build a scientific and reasonable system. funding system.

## 2 THE VALUE IMPLICATION OF PRECISE FUNDING FOR COLLEGES AND UNIVERSITIES FROM THE PERSPECTIVE OF BIG DATA

### 2.1 CONDUCTIVE TO PROMOTING EDUCATIONAL EQUITY AND SOCIAL EQUITY

Big data provides new development and new directions for college student financial aid, and gives ideological support for college student

financial aid. Use big data to identify poor students and apply the results of big data analysis to the verification evaluation of the financial aid system for poor students and the early warning of student groups with special difficulties, so as to realize the current situation of financial aid. Effective supplementary identification of poor students, through the integration of big data and informatization, makes student aid work more accurate, convenient and smarter. Therefore, promoting the informatization construction and big data application of precision funding in colleges and universities is conducive to achieving precise funding for poor students in colleges and universities. [1]

## 3 ANALYSIS OF PRECISE FUNDING FOR COLLEGES AND UNIVERSITIES FROM THE PERSPECTIVE OF BIG DATA

Our country has long attached great importance to the funding of college students. Colleges and universities across the country have responded to national requirements, continuously expanded the scale of funding, and increased funding through means such as national student loans, national motivational scholarships, tuition exemptions, living subsidies, and hardship subsidies. Funding for poor students has helped a large number of poor students reduce their life pressure and psychological burden, and helped them successfully complete their studies. However, there have always been flaws in the identification of poor students in university funding. On the one hand, there are loopholes in the identification process; on the other hand, the funding system is imperfect.

However, the above problems can be effectively solved through accurate analysis of big data. Big data is supported by real-time dynamic analysis and integrates identification of poor students, dynamic analysis of student campus consumption behavior, early warning and guidance of student consumption behavior, dynamic care of students, and organic integration of online and offline. As a whole, it can achieve precise assistance for university funding

work.

#### **4 THE REALIZATION PATH OF PRECISE FUNDING FOR COLLEGES AND UNIVERSITIES FROM THE PERSPECTIVE OF BIG DATA**

##### **4.1 USE BIG DATA INFORMATION TO CLARIFY PRECISE FUNDING STANDARDS**

Colleges and universities should make full use of the clustering algorithms in big data technology to proactively identify students who meet the funding criteria. Using big data clustering algorithms, we can process data with maximum differentiation, integrate data with similar characteristics, and filter and clean out stable data from a large amount of data through hierarchical methods, density model algorithms and other technologies. Collections of data with similar characteristics, and these collections are the data that ultimately meet our criteria.

##### **4.2 USE BIG DATA TO SUMMARIZE AND INTEGRATE STUDENT INFORMATION**

Under the perspective of big data, in order to better promote the precise funding of colleges and universities, after identifying poor students who meet the standards, colleges and universities need to use big data technology to summarize and integrate the information of these students. This is the basis for subsequent accurate classification work. Prerequisites. Specifically, it can be summarized and integrated from the following aspects. the first is to use big data technology to summarize and integrate students' basic information data. the second is to use big data technology to summarize and integrate students' behavior in school. the third is to make full use of big data analysis technology to analyze and process students' basic information and school behavior data.

##### **4.3 IMPROVE THE BIG DATA PLATFORM TO ACHIEVE ACCURATE CLASSIFICATION OF STUDENTS**

From the perspective of big data, in order to better promote the precise funding of colleges and universities, after aggregating and integrating student information, colleges and universities should improve the big data platform, accurately classify students in need of funding, and help the funding work achieve "dynamic management." We can make full use of big data technology, perform hierarchical screening, flow step by step, and reasonably classify student information. Colleges and universities can build a "smart campus" platform and use the decision tree algorithm to obtain analytical data. the basic principle of the decision tree algorithm is to process data with multiple characteristics and then output the data of a certain characteristic. In simple terms, this algorithm is Refining numerous data, refining data

labels, and attaching corresponding labels to different data to achieve data classification, thereby providing effective reference information for managers.

##### **4.4 IMPROVE THE LEARNING PLATFORM AND CARRY OUT TARGETED FUNDING AND SUPPORT PROJECTS**

From the perspective of big data, in order to better promote the precise funding of colleges and universities, colleges and universities should continuously improve their learning platforms, dynamically manage funding work, and actively establish a matching mechanism between supply and demand to provide "precise assistance" to college students from families with financial difficulties., promote the self-selection system of funded projects, improve funding management, and accurately implement the funding process. Specifically, implementation can be carried out from the following aspects: First, build a matching mechanism between supply and demand and carry out targeted funding and support projects. the second is to build a support mechanism for diversified entities. [2]

##### **4.5 IMPROVE BIG DATA SUPERVISION AND FEEDBACK MECHANISM**

From the perspective of big data, in order to better promote the precise funding of universities, universities should continue to improve the big data supervision and feedback mechanism. Specifically, they can be continuously improved from the following aspects.

The first is to use big data mining and analysis technology and mathematical modeling theory to establish a "data model" to evaluate and predict students from families with financial difficulties, and establish an identification and early warning mechanism. the second is to accurately track funding results. First of all, use the big data platform to help financial aid workers understand the real consumption situation of students during school, students' economic level, improve the accuracy and fairness of student financial aid work, and accurately grasp the study and living conditions of students during school, through monitoring and analysis and pre-judgment, and pursue value rationality to achieve diversified, differentiated, and developmental precision funding. the second step is to establish a "precision funding" working mechanism as a starting point, combine "supporting the poor" with "supporting intelligence", "supporting the poor" with "supporting aspirations", and track and understand and quantitatively evaluate the growth and success of the assisted students.

#### **5 CONCLUSIONS**

The informatization construction of precision funding for colleges and universities is currently a

key research issue in higher education. If we want to better promote precision funding for colleges and universities, we must make full use of big data technology to carry out targeted assistance, and continuously improve the big data platform to help the poor. Accurately classify students, improve the learning platform to carry out targeted funding and support projects, improve big data supervision and feedback mechanisms, realize "funding and educating people", highlight the essence of university funding work, enrich the content of university funding work, expand the university funding work model, and innovate. Therefore, strengthening the use of big data has great practical significance for universities to carry out assistance work.

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# Research on Strategies to Improve the Employment Guidance Ability of College Counselors

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**Abstract:** College counselors are the backbone of employment guidance work, and their ability directly affects the employability and employment quality of college students. Due to the lack of cognition and professional ability of guidance, the lack of guidance ability of college counselors appears, which has a profound impact on the employment situation of college students. Based on this, this paper studies and analyzes the necessity, current situation and existing problems of counselors' ability to improve their employment guidance, and puts forward some strategies to improve college counselors' employment guidance ability, such as changing counselors' ideas and improving their employment guidance ability.

**Keywords:** College counselors; Employment guidance ability; Promotion strategy

## 1 INTRODUCTIONS

The employment pressure of college graduates is increasing, the difficulty of employment is also increasing, and the employment situation is not optimistic. In this context, the employment guidance of college students is particularly critical, among which counselors occupy an important proportion. Therefore, in the increasingly severe employment situation, how to improve the ability of counselors to guide employment has become a key issue that universities need to think about.

## 2. SIGNIFICANCE AND NECESSITY FOR COLLEGE COUNSELORS TO IMPROVE THEIR EMPLOYMENT GUIDANCE ABILITY

### 2.1 SIGNIFICANCE OF COLLEGE COUNSELORS' ABILITY TO IMPROVE EMPLOYMENT GUIDANCE

It is of great practical significance to improve the employment guidance ability of college counselors. However, in reality, the important role of college counselors in the employment guidance team of colleges and universities has not been fully demonstrated, mainly because the employment guidance ability of counselors cannot meet the actual needs, and they cannot timely use relevant experience and knowledge theory to provide

practical and effective employment guidance information for students.

College counselors, as the guide of students, can not only improve their employment guidance ability, but also effectively improve their comprehensive quality, which can provide better talent supply for the employment guidance work of colleges and universities, which is of great benefit to colleges and universities, counselors themselves, students and employers, and is more in line with the needs of education in the new era and the training goals of educators. [1]

### 2.2 NECESSITY FOR COLLEGE COUNSELORS TO IMPROVE THEIR EMPLOYMENT GUIDANCE ABILITY

First, to improve the employment guidance ability of college counselors is an urgent need to do a good job in graduates' employment. With enough professional and reasonable employment guidance knowledge, counselors can provide high-quality employment guidance and information services for college students, help them establish a correct career outlook and employment concept, and then mitigate the impact of the contradiction between supply and demand of college graduates on employment, and effectively solve its structural contradictions.

Second, college counselors have outstanding advantages in employment guidance. Counselors can purposefully carry out comprehensive employment guidance work, help students establish a correct view of career and employment, so that students can selectively learn relevant experience, participate in practical activities, accumulate relevant knowledge, and then achieve the purpose of improving students' employment competitiveness, help them stand out in the fierce employment situation, and realize the value of life. Third, it is conducive to the improvement and development of personal comprehensive quality of counselors. As for the personal development of college counselors, the employment guidance work in some colleges and universities has not received enough attention at this stage, and the counselors themselves have relatively shallow understanding

of professional employment theories, and can not use the existing teaching conditions to provide effective guidance for graduates' employment.

### **3. PROBLEMS EXISTING IN THE EMPLOYMENT GUIDANCE ABILITY OF COLLEGE COUNSELORS**

#### **3.1 THERE ARE DEVIATIONS IN THE CONCEPT OF EMPLOYMENT GUIDANCE AND INSUFFICIENT INVESTMENT**

At present, many colleges and universities have set up employment guidance centers, but some educators still have a wrong understanding of the concept of employment guidance. As an important part of the construction of the employment guidance team, the counselor has not received enough attention, resulting in the lack of employment guidance training of college counselors, and can not guarantee the effect of students' employment guidance.

On this basis, most counselors do not have a deep understanding of the employment guidance work, and think that it should be carried out by the employment guidance center, professional employment classes and their teachers, and they only need to do a good job of cooperation, without playing a professional guidance role, so their employment guidance concept is biased.

#### **3.2 THE EMPLOYMENT GUIDANCE LEVEL OF COUNSELORS IS LOW**

Due to the work characteristics of counselors, they are in the front line of students' work and need to deal with students' moral education work and daily management tasks, and the work is relatively heavy. Therefore, counselors may not be able to fully engage in employment guidance to a certain extent, resulting in a lack of understanding of their employment guidance, and then affect the level of counselors' employment guidance.

### **4 STRATEGIES FOR IMPROVING THE EMPLOYMENT GUIDANCE ABILITY OF COLLEGE COUNSELORS**

#### **4.1 CHANGE THE CONCEPT OF COUNSELORS**

To improve counselors' ability of employment guidance, we must first change their understanding of employment guidance work. In order to better achieve the desired results, the school, the relevant employment departments, the relevant teachers and their counselors should make corresponding changes. At the school level, the school should pay attention to the importance of counselors in the construction of career guidance team, provide conditions and space for them to improve, and increase investment in the training of counselors' employability. Employment related departments and teachers need to correctly understand the role of counselors in employment guidance, change the previous wrong ideas, and ensure that counselors

can play the maximum effect of employment guidance, rather than just stay in the auxiliary and final work. College counselors should fully realize the significance of college students' employment guidance on the basis of the school and its related departments and teachers' changing ideas, and establish correct employment guidance concepts to effectively improve their employment guidance ability.

In order to better perform the job duties of employment guidance, after understanding the actual situation of students in the class, counselors need to draw up detailed employment guidance working methods.

#### **4.2 IMPROVE THE EMPLOYMENT GUIDANCE ABILITY OF COUNSELORS**

Strengthen employment guidance study and perfect knowledge structure. the improvement of the employment guidance ability of college counselors is not achieved overnight, but needs to make progress step by step through systematic and scientific learning, training and experience accumulation.

We will strengthen employment guidance practices. During the period of enhancing employability, college counselors need to pay attention to the development of practical activities, and then seek experience in practice to obtain qualitative improvement. Counselors should carry out more activities related to vocational skills, strengthen the publicity of various services provided by the employment guidance department, so that students can have an in-depth understanding of employment knowledge and relevant information in practical activities, and effectively improve students' employability and in-depth cognition of the needs of social undertakings.

Strengthen understanding of the market. the improvement of the employment guidance ability of college counselors is closely related to the actual demand of the social vocational market. In order to comprehensively improve the employment guidance ability of college counselors, it is necessary to strengthen their understanding of the market on the basis of improving their professional systematic knowledge and practical ability, which can also help counselors more intuitively understand the real-time employment demand, and then provide students with high-quality information and employment direction. During this period, in order to effectively improve the employment guidance ability of college counselors, counselors can also take more ways in the investigation of social employment needs. College counselors must take into account market demand, student strength and real-time information on the network to provide students with more comprehensive employment security, and then better improve their own employment guidance level. [2]



#### 4.3 IMPROVE THE EMPLOYMENT ASSESSMENT SYSTEM

In view of the complicated daily work of counselors, which will distract their time and energy in employment guidance, the school needs to improve the employment assessment system, which is conducive to effectively mobilizing the enthusiasm of counselors to participate in employment guidance, and is also conducive to the overall improvement of the quality of counselors, and the employment guidance ability can be effectively guaranteed.

During the construction of the employment assessment system, the school needs to provide conditions for the assessment and selection of counselors based on campus resources. Excellent career guidance counselors can be selected through the evaluation of various departments in the school, student evaluation, career guidance lecture evaluation and other ways, and provide them with certain rewards.

#### 5 CONCLUSIONS

College employment guidance is a systematic project related to the national economy, people's

livelihood and the development of market economy, which is very key to talent training in the new era. As front-line teachers of students' work, college counselors need to comprehensively improve their employment guidance ability, and ensure the professionalism and rationality of their employment guidance level through systematic study and practice. To provide practical and useful employment guidance for college students, so as to increase the employment competitiveness of students and improve the employment probability of college graduates.

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# Analysis Of the Therapeutic Effect of Traditional Chinese Medicine on Hypertension

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**Abstract:** Objective: To analyze the effectiveness of traditional Chinese medicine treatment methods during the treatment of hypertension. Method: Hypertension patients admitted to our hospital from August 2022 to August 2023 were divided into two groups on average, with a total of 120 cases divided into the study group (n=60) treated with traditional Chinese medicine and the reference group treated with conventional Western medicine (n=60). the results were statistically analyzed and compared. Result: the clinical effect of the study group after treatment was significantly higher than that of the reference group ( $P < 0.05$ ). Conclusion: the use of traditional Chinese medicine treatment methods for hypertensive patients can effectively improve clinical efficacy, and has high application and promotion value.

**Keywords:** Traditional Chinese Medicine Treatment; Hypertension; Curative Effect

## INTRODUCTION

Hypertension is a common disease in clinical practice with a high incidence rate. Its main characteristic is an increase in human arterial pressure, and patients have symptoms of elevated blood pressure. After the disease occurs, it accumulates in the patient's heart, kidneys, and blood vessels, causing changes in their function. It is a systemic disease. the rapid development of the current social economy has promoted the improvement of people's quality of life, resulting in changes in people's living and dietary habits, leading to an upward trend in the incidence of hypertension [1]. Traditional Chinese medicine believes that the imbalance of yin and yang in the human body is an important factor leading to the occurrence of this disease. Therefore, when treating hypertension, traditional Chinese medicine often takes regulating the internal organs as the basic principle to achieve a balance of yin and yang in the patient's body. Based on this, this study selected some patients to receive treatment through group comparison, and after statistical analysis of the relevant results, the following report is made.

## 1 MATERIALS AND METHODS

### 1.1 GENERAL

From August 2022 to August 2023, 120 hypertensive patients were selected from our hospital and divided into a study group treated with traditional Chinese medicine and a reference group treated with conventional Western medicine, with 60 patients in each group. the minimum age of all patients is 42 years old, the maximum age is 79 years old, and the average age is  $(54.26 \pm 3.75)$  years old. the difference between the above data is not significant ( $P > 0.05$ ), which can be compared.

### 1.2 METHOD

After determining the reference group of patients, the clinical symptoms during their treatment period were analyzed, and relevant Western medicine treatment was carried out based on this. the drugs used during the treatment process mainly include calcium channel blockers, indapamide sustained-release tablets, diuretics, compound reserpine and nifedipine tablets, etc.

During the treatment period, patients in the research group were treated using reasonable methods based on their syndrome types. If the patient belongs to the type of hyperactivity of liver yang, 30g of Shixiaming, 10g of Eucommia ulmoides, 15g of White Peony, 10g of Scutellaria baicalensis, 12g of Gouteng, 10g of Motherwort, 12g of Zhuhuoshen, 10g of Nightcross, and 12g of Achyranthes bidentata were selected for treatment; 10 gardenias and 10 mulberry parasites form Tianma Gouteng Yin for treatment. After the prescription is confirmed, it is boiled with water and taken twice a day. (2) If the patient belongs to the Yin Yang deficiency type, they should choose 12g yam, 12g cooked rehmannia, 12g cornus officinalis, 3g cinnamon, 9g alisma, 9g achyranthes bidentata, 9g white poria cocos, and 9g peony skin to form Liuwei Dihuang Tang for treatment. After boiling with water, they should take one dose every day, twice in the morning and evening. (3) Liver and kidney yin deficiency type. Choose 20g fried jujube kernels, 16g salvia miltiorrhiza, 20g ligustrum lucidum, 15g yam, 15g rhizoma polygonatum, 15g alisma orientalis, 12g goji berries, 12g danpi, 15g kudzu root, 12g poria cocos, 15g cornus meat, and 15g chrysanthemum to form a modified goji dihuang decoction. Boil with

water and take one dose daily, twice in the morning and evening [2]. Use the above drugs to treat patients for 4 courses of treatment.

### 1.3 OUTCOME MEASURES

After treatment, analyze the treatment effects of two groups, and divide them into three levels based on the patient's blood pressure situation and changes in blood pressure after diet. After receiving treatment, the patient's blood is within the normal range or close to it, and there is no significant increase after diet, indicating that clinical treatment is effective. the treatment is effective if the patient's blood decreases but does not reach the normal range after treatment; the patient's blood pressure remains unchanged or increases after treatment, indicating ineffective treatment.

Total effective rate = (significant + effective) / 60 cases × 100%.

### 1.4 STATISTICAL PROCESSING

N (%) represents the counting data in the study, and (x ± s) represents the measurement data in the study. the analysis and statistics of the relevant data were completed using computer software SPSS 23.0. After recording the relevant data, they were tested. the measurement data and counting data were tested using t-test and X2 test, respectively. If there is a significant difference in the results, it indicates statistical significance, represented by (P<0.05).

## 2 RESULT

The clinical efficacy of patients in the study group after treatment was significantly higher than that in the reference group, and the difference was statistically significant (P<0.05), as shown in Table 1.

**Table 1 Comparison of clinical treatment effects between two groups after treatment with different methods(n/%)**

group	Number of cases	Apparent effect	effective	invalid	Total effective rate
study group	60	34(56.67)	26(43.33)	0(0.0)	60(100.0%)
reference group	60	27(45.0)	22(36.67)	11(18.33)	49(81.67%)
X <sup>2</sup>					21.254
P value					<0.05

## 3 DISCUSS

Hypertension is a common cardiovascular disease in clinical practice. the incidence of hypertension in China is relatively high and showing a gradual upward trend. Due to the significant impact of this disease on the physical and mental health of patients, it is necessary to actively study treatment methods and choose feasible methods for treatment in clinical practice. Traditional Chinese medicine is a treasure of traditional Chinese culture, which has been passed down for a long time. Applying this method to the treatment of hypertension plays an important role. According to the current theory of traditional Chinese medicine, hypertension can be divided into three types: kidney and liver yin deficiency, liver and kidney yin yang deficiency, and liver fire hyperactivity. During the treatment of hypertension patients using traditional Chinese medicine methods, it is usually necessary to analyze the symptoms of the patients and understand the main causes of the disease. Based on this, targeted traditional Chinese medicine prescriptions are prescribed for treatment. However, in the actual treatment process, it is necessary to understand the patient's situation and make appropriate adjustments to the patient's treatment plan in combination with relevant changes. This study used traditional Chinese medicine decoction to treat the study group, and the results showed that the clinical treatment effect of the patients was significantly higher than that of the reference group, with a statistically significant difference (P<0.05). the research group chose Liuwei Dihuang Tang for the treatment of patients with yin and yang deficiency. the drugs that play a role in

tonifying the liver and kidney are Cornus officinalis, Rehmannia glutinosa, and Achyranthus bidentata. the drugs that play a role in promoting blood circulation and clearing heat are Danpi, yam is used for tonifying the kidney and stomach, Poria cocos is used for strengthening the spleen and stomach, and cinnamon is used for warming and tonifying kidney yang. the combination of these drugs can alleviate symptoms such as low back pain and dizziness [3]. In the Gouju Dihuang Tang used for patients with liver and kidney yin deficiency, the drugs that have the nourishing effect of liver and kidney yin are prepared Dihuang and goji berries; the medicine that has the effect of clearing the eyes and liver is chrysanthemum; the drugs that play a role in clearing the fire of the liver and kidney are Zexie and Danpi; the drug that has an improvement effect on neck and back pain is kudzu root, which can nourish the liver and nourish the kidneys when used together.

In summary, the use of traditional Chinese medicine treatment methods for hypertensive patients can effectively improve clinical treatment effectiveness, which is worth learning from and applying.

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# Analysis Of the Types and Benefits of Mergers

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**Abstract:** Mergers are very common in business operations and management. This article will analyze and compare different types of mergers and point out the benefits.

**Keywords:** Mergers; Type; Benefits

## 1. TYPES OF MERGERS.

There are four main types of mergers. the first one is horizontal merger. It is a merger between companies that are in direct competition with each other in terms of product lines and markets. A famous example of a horizontal merger was that between HP (Hewlett-Packard) and Compaq in 2011. the second type is vertical merger which is a merger between companies that are along the same supply chain (e. g., a retail company in the auto parts industry merges with a company that supplies raw materials for auto parts). A notable vertical merger happened between America Online and Time Warner in 2000. the third one is Congeneric merger which could be divided into two Market-extension merger and Product-extension merger. Market-extension merger is between companies in different markets that sell similar products or services. For example, RBC Centura's merger with Eagle Bancshares Inc. in 2002 was a market-extension merger that helped RBC with its growing operations in the North American market. Product-extension merger is between companies in the same markets that sell different but related products or services. For example, the merger between Mobilink Telecom Inc. and Broadcom is a product-extension merger. Conglomerate merger is the last one. It is A merger between companies in unrelated business activities (e. g., a clothing company buys a software company)For example, the merger between Walt Disney Company and the American Broadcasting Company (ABC) was a conglomerate merger.

## 2. COMPARE HOSTILE AND FRIENDLY TAKEOVERS.

Firstly, define acquiring company and target company. In a takeover, the acquiring firm needs to choose a target at first. the next step is to build a price. Then select a payment method which could be offering cash, stock or combination of them. After that, the acquiring company will contact the managers of target firm. If the target company agrees the takeover, we say this

merger is friendly. Then the ownership of the target firm's shares will be transformed, and the shareholders of target firm will become the acquiring company's shareholders. However, the target firm might be reluctant to be acquired. In this case, the takeover becomes hostile. In a hostile merger, the acquiring company will go directly to the shareholders of the target company and persuade them to tender their stocks in exchange for the offered price. In order to defense hostile takeover, the target company's managers usually state the offered price is too low and discourage stockholders from tendering the shares.

## 3. OVERVIEW OF MERGER ANALYSIS.

When doing merger analysis, the main considerations are as follows. the first one is how much would the target be worth after acquisition? It may be different from the current value, which does not reflect any post-merger synergies or tax benefits. Secondly, the acquirer should decide how much to offer in the bid. For example, a lower price is better for the acquirer but might not be accepted by the target. A higher price sometimes can scare off the potential rival bidders.

Merger Valuation Approaches: the most commonly used method is the discounted cash flow (DCF) method. In this case, free cash flow to equity (FCFE) is used. Discount the cash flow available for distribution to common shareholders using the cost of equity to calculate the value of the equity from operations.

FCFE = Free cash flow - Interest expense+interest tax shield+Net change in debt  
= Net income -net investment in operating capital+net debt

Both calculations provide the same value for FCFE, but the first equation is used more often because analysts don't always estimate the net income for a target after the takeover.

$$V_{FCFE} = \sum_{t=1}^{\infty} \frac{FCFE_t}{(1+r_s)^t}$$

Market multiple analysis: A target is directly comparable to the average firm in its industry, providing at best a ballpark estimate. (less accurate and less frequently used)

## 4. ROLES OF INVESTMENT BANKERS

The first is the merger and acquisition groups of the investment bankers give customer some proposal to merge target firms. the second is that they provide some Developing Defensive Strategies, including they change the bylaws of the customer so that only 1/3 of directors are elected each year. They convinced target firms that the price the offered to merge is too low and raising antitrust issues in the hope that the Justice Department will intervene. Some special measures they use for defensive, such as "White Squire" an investor who is friendly to current management to buy enough of target firms shares to block the manager, and "White Knight" a man who is acceptable to the target firm's management to compete with the potential acquirer. There are some other measures. Investment bankers repurchasing stocks in the open market to push price above that being offered by the potential acquirer. They give some "Poison pills" to target firms which means their client borrows on terms that require immediate repayment of all loans if the firm is acquired. the last proposal is they can use their money to finance mergers, such as giving financing package to clients and investing in the stocks of potential merger candidate.

##### **5. THE BENEFITS OF MERGER.**

Firstly, mergers can eliminate the competitions. In an active market, companies need to face many excellent competitors. In order to gain more control over the market, companies can take the acquisition of competitors. After the merger, there will be fewer competitions and the market will have a healthy environment.

Secondly, mergers can help companies have a better development. Due to the merger, companies will purchase new equipment to upgrade the original equipment. What's more, the companies will have better technology to research and develop the new products. Then companies will find more channels to sell products.

Thirdly, mergers can reduce the risk. After the merger, companies will get more business types. the business of companies becomes diversified which can help companies to avoid risks and gain more benefits.

However, compared with mergers, sometimes corporate alliances can perform better, because alliances allow firms to focus on specific potential business lines. One obvious advantage is corporate alliances increase stock price.

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# Research and Practice on the Teaching Reform of Marine Engineering Technology under the Background of "Excellent Seafarers"

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**Abstract:** This article mainly focuses on the educational development background of Jiangsu Maritime Vocational and Technical College in cultivating "outstanding seafarers", analyzes the teaching status of the Marine Engineering Technology major, and proposes specific measures for the teaching reform and practice of the Marine Engineering Technology major under the background of "outstanding seafarers", including strengthening the construction of the teaching staff, emphasizing practical teaching, constructing a course system combining engineering and learning, and improving teaching conditions. And apply these measures to the teaching of professional courses. Through the implementation of these measures, students can not only access high-quality teaching resources but also acquire good professional abilities in the context of "outstanding seafarers".

**Keywords:** Outstanding Seafarers; Marine Engineering; Teaching Reform

## 1. INTRODUCTION

"Excellent seafarers" refer to those who aim to cultivate senior seafarers with international perspectives, familiarity with international rules, high professional qualities, strong professional abilities, and innovative abilities, guided by the quality needs of shipping enterprises for senior seafarers, and centered on strengthening the cultivation of students' professional and innovative abilities. Through a collaborative innovation mechanism led by the government, industry guidance, and enterprise participation, "excellent seafarers" are cultivated.

In order to achieve the goal of cultivating "outstanding seafarers" and further improve the quality of talent cultivation, Jiangsu Maritime Vocational and Technical College actively carries out education and teaching reform research in the Marine Engineering Technology major, focusing on the positioning of professional talent cultivation goals, talent cultivation plans, curriculum system and teaching content, practical teaching system and platform construction,

teaching methods and means, and teacher team construction. We have constructed a "progressive ability" curriculum system, proposed an integrated curriculum system under the "1+X certificate" system, and formed a "1+0.5+1+0.5" talent training model with the goal of cultivating "outstanding seafarers". As a vocational education major, the talent cultivated by the Marine Engineering Technology major has the characteristics of strong interdisciplinary nature, close integration of theory and practice, which requires students to have a certain foundation in the learning process. However, the existing education system in China mainly focuses on theoretical education, lacking practical and innovative abilities. Therefore, in order to meet the demand of society for high-quality talents, China needs to cultivate senior crew members with international perspectives and strong professional abilities.

## 2. CLARIFY THE POSITIONING OF TALENT CULTIVATION GOALS AND CONSTRUCT A "PROGRESSIVE ABILITY" CURRICULUM SYSTEM

The Marine Engineering Technology major is a highly applicable discipline. Graduates of the Marine Engineering Technology major are mainly engaged in the maintenance and management of marine machinery equipment for various shipping companies, port bureaus, maritime colleges, and other fields. Therefore, in the context of "outstanding seafarers", the talent cultivation goal of the Marine Engineering Technology major is to cultivate senior crew members with good professional qualities and abilities.

According to the training goal of "outstanding seafarers", combined with the analysis of professional positions and abilities in the field of marine engineering technology, the ability of cultivating students is divided into three aspects: knowledge, skills, and quality. Taking these three aspects into consideration, a "progressive ability" curriculum system has been constructed. The first level is mainly general education courses; the second level is professional basic courses and professional core

courses; the third level is practical training and internship courses. A scientific and reasonable curriculum system has been developed considering students' knowledge, skills, and qualities. This curriculum system reflects the knowledge and skills required for vocational positions, which meets the ability requirements of students in school learning and enterprise practice. It is not only conducive to students' independent learning, but also can adapt to the needs of enterprise development.

In order to achieve this goal, a "progressive ability" curriculum system has been constructed. Through the integration of engineering and learning, engineering and learning projects have been introduced into relevant courses. On the basis of students' mastery of relevant professional knowledge and skills, the process of "learning training practice assessment" has enabled students to possess professional abilities for relevant positions. In this process, students need to continuously learn new knowledge and skills, and undergo practical and practical training to meet the requirements of "outstanding seafarers".

### **3. IMPLEMENT THE "FOUR STAGE" INTEGRATED TEACHING MODEL**

A "four stage" integrated teaching model has been proposed for the characteristics of the marine engineering technology major. the "four stage" integrated teaching model refers to the use of various forms such as practical teaching, engineering learning integration, and school enterprise cooperation to enable students to learn both theoretical knowledge and practical skills during the learning process. the "four stage" integrated teaching model mainly includes: the first stage: students first master basic knowledge through learning during the learning process; Stage 2: On the basis of completing the first stage, students will combine their knowledge and skills to conduct professional skills training; Stage 3: After completing the second stage of training, students consolidate and improve their professional skills; Stage 4: After completing the second stage, students will undergo relevant professional follow-up and on-the-job internships.

Practice has proven that adopting this model can stimulate students' learning enthusiasm and improve their comprehensive professional abilities. In order to implement the "four stage" integrated teaching model, it is necessary to conduct in-depth research on corporate culture and integrate it into curriculum construction, practical teaching, and graduation design; Establish a comprehensive quality evaluation system to enable teachers to better carry out curriculum development and teaching reform; Strengthen the cooperation between schools and enterprises, so that teachers and enterprise technicians can better carry out scientific research work.

### **4. STRENGTHEN THE CONSTRUCTION OF TEACHING STAFF AND CREATE A DUAL TEACHER STRUCTURE TEACHING TEAM**

To truly implement the "Excellent Seafarer" training program, the key is to have a high-quality teaching team. University teachers play an extremely important role in the teaching process. In the implementation of the "Excellent Seafarer" talent cultivation plan, it is necessary to strengthen the construction of the teaching staff, create a dual teacher structure teaching team, and enable them to undertake both professional course teaching tasks and practical teaching tasks.

Firstly, it is necessary to improve the overall quality of the teaching staff. Universities should pay attention to providing on-the-job training for teachers, improving their professional quality and teaching level, in order to ensure the quality of teaching. Secondly, we need to strengthen the training of young teachers. Universities should actively organize young teachers to participate in various forms of training and further education activities, and encourage them to participate in international and domestic academic exchanges and research projects. Once again, we need to strengthen the construction of a "dual teacher" teaching team. Universities should actively encourage teachers to use their spare time for academic education, graduate course learning, and pursuing degrees, continuously improving their theoretical and professional skills to ensure that the knowledge they have learned can be flexibly applied to practical teaching during the teaching process. Finally, we need to fully leverage the leading role of backbone teachers. Backbone teachers should actively participate in research projects and continuously improve their research capabilities and professional skills.

### **5. CONCLUSION**

The cultivation of "outstanding seafarers" has put forward higher requirements for the teaching of marine engineering technology. This article mainly focuses on the educational development background of cultivating "outstanding seafarers" in China, analyzes the current teaching situation of marine engineering technology, and proposes teaching reform and practical measures for marine engineering technology under the background of "excellent seafarers", including strengthening the construction of teaching staff, emphasizing practical teaching, and constructing a course system combining engineering and learning. Improve teaching conditions and apply these measures to the teaching of professional courses. Through these reforms and practices, not only can students obtain high-quality teaching resources under the background of "outstanding seafarers", but also can students acquire better professional abilities. This article analyzes the educational development background of cultivating "outstanding seafarers" and proposes teaching reform and practical measures for



the marine engineering technology major, which has certain reference significance.

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# Research and Analysis of Future-Oriented Construction Project Management Informatization

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**Abstract:** With the continuous improvement of information technology, the development of all walks of life tends to be intelligent and informationized. Building intelligent technology has been introduced and widely used in all aspects in China. While promoting the intelligentization of architectural design and construction, the management mode of architectural engineering also tends to be intelligent, professional and informationized, which has become the inevitable trend of the development of the construction industry. This paper discusses the intellectualization of construction project management based on BIM technology in combination with the practical problems in the process of construction project management.

**Keywords:** Construction Project; Management Informatization

In recent ten years, BIM technology has achieved fruitful results in the field of construction engineering in the United States, Japan and other countries. BIM is a digital tool applied to engineering design, construction and management. It can be used not only in the field of architectural construction, but also in the teaching process of architectural specialty, which has played a positive role in the theoretical and practical teaching of architectural specialty in higher vocational colleges. BIM technology makes the teaching content more intuitive and vivid, and can stimulate students' interest and enthusiasm in learning, thus improving the teaching effect. In view of many problems existing in construction project management, the construction industry has improved it by introducing CAD technology and BIM technology, especially BIM technology, which has provided an important technical foundation for the intelligent management of construction projects in China and promoted the informatization and professional development of construction project management in China. In recent years, the international community has paid special attention to the construction and management of construction projects. In order to improve management efficiency and highlight management effect, construction enterprises need to adapt to the

trend of information reform, strengthen the effective application of BIM technology and build an intelligent management platform. In order to expand the coverage of project management and promote the implementation of high efficiency in construction projects. This paper mainly analyzes the application value of BIM in project management, understands the current application status, explores effective application strategies, and thinks about the next application prospect, hoping to provide reference for the effective implementation of construction project management in the future.

BIM technology, also known as Building Information Modeling, refers to a technology that uses computer programs to build a building engineering model and digitally expresses the management, operation and maintenance of the whole life cycle of a building, involving three-dimensional models, database management, network communication and other aspects. In building engineering management, staff use BIM technology to build a three-dimensional space model of a building. And the construction engineering information base is established to visually express all kinds of charts needed in the project, and to manage and control the construction schedule, cost control and construction quality, so as to improve the efficiency and quality of the construction project and ensure the smooth development of the construction project.

At present, the intelligent development of building engineering management in China is still in the primary stage. Due to the long construction period and complicated construction procedures, it is easy to lead to mistakes in intelligent management of building construction, such as nonstandard intelligent construction management process, untimely sharing of information related to building engineering and backward intelligent technology, which hinders the intelligent management of building. the intelligent management of building engineering based on BIM technology can effectively solve these problems.

Intelligent building design based on BIM technology. the traditional architectural design is a two-dimensional abstract plane figure. When the engineering team relies on drawings for construction,

it also needs auxiliary expressions in the form of words or languages to ensure that its design and construction quality meet the expected goals. However, this method is time-consuming and laborious, and it is easy to affect the construction quality because of the misunderstanding of information between the two parties. However, BIM technology can effectively avoid this problem. Designers use modeling software to build a three-dimensional model of the building, and render the building model through digital technology, so as to design visual drawings, and all information and data of the building structure can be accurately marked by modeling software, with few errors and omissions. The superposition of different three-dimensional drawings makes the quality of architectural design more reliable. It can be seen that the intelligent degree of architectural design based on BIM technology is relatively higher, and its design method and design effect will be more professional.

Intelligent management of building construction based on BIM technology. The construction process is the most critical link in the whole life cycle of a building project, involving construction schedule, personnel deployment and construction technology. Construction enterprises can make detailed plans for the schedule and personnel deployment of the construction process by using BIM technology. At the same time, engineers can also use virtual technology and BIM model to simulate the construction plan, build a virtual construction scene by modeling software, simulate the operation of the construction plan, and analyze the possible defects of the construction plan by using the visual advantages of BIM technology. The construction scheme simulated and optimized by BIM technology is more perfect, which makes the construction safer and smoother. It can be said that with the help of BIM technology, the construction management will be more intelligent, visual and professional.

Construction cost management based on BIM technology. Construction cost and cost control are the main ways for construction enterprises to obtain economic benefits. In construction project management, enterprises can use BIM technology to simulate their project costs. According to the information data such as construction quantities and various resources, enterprises can simulate the total cost of their projects, and BIM simulation technology can help enterprises to re-plan their construction materials, human resources and technologies, and improve the construction efficiency of construction projects. So as to achieve the goal of minimizing the construction cost and maximizing the economic benefits. As a result, the cost management of the whole construction project tends to be dynamic and intelligent, and enterprises can adjust their cost control

schemes at any time according to their construction conditions.

With the popularization and application of BIM technology, the shortage of talents is a major bottleneck in the current development, and the demand for BIM talents will also change from quantitative demand to qualitative measurement. Facing all kinds of BIM demands in the construction market, higher vocational colleges should strengthen school-enterprise cooperation, jointly build BIM technology studios, enhance the ability of teachers, and constantly improve the environment in which BIM technology is applied in the teaching of architectural majors, so as to improve the practical teaching effect of BIM technology and the quality of personnel training.

In short, BIM technology is of great significance to the intelligent management of construction projects. At this stage, the intelligent development of construction project management in China still needs continuous improvement. Combining BIM technology, the business processes of construction enterprises are optimized to improve the quality and efficiency of construction project management. New technologies emerge one after another, and digital economy has become an important direction of social and economic development. In this context, the construction industry has achieved multiple optimization of technical means and management system, and the construction efficiency has been significantly improved, and the construction scale has become even larger. At the same time, however, the management difficulty of engineering projects has also increased, especially after the application and popularization of big data technology, the new management system has put forward newer and higher requirements for the allocation of employees and teams, and the construction industry has thus entered a new stage of development. Based on this, by summarizing the background and characteristics of information BIM, this paper analyzes the problems existing in project management under this background, and puts forward the innovative path of project management informatization under the background of big data, with a view to helping the transformation and development of construction industry enterprises.

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# Construction of Practical Teaching System for Mobile Communication Technology Majors in Higher Vocational Education

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**Abstract:** For the mobile communication technology major, it is necessary to establish a practical teaching system with strong characteristics through the review system proposed by China in the context of skill cultivation at the center of professional positions. This can scientifically handle the construction of practical teaching bases and the connection of training courses in vocational colleges, and promote the value and role of the practical teaching system construction of this major in vocational colleges.

**Keywords:** Construction of practical teaching system for mobile communication technology in vocational colleges

## CITATION

In the process of professional education in vocational colleges, most schools lack a certain degree of soundness and completeness in terms of teaching staff and cooperation and communication with enterprises, or use the previous teaching system to carry out educational work. In order to enhance the employability of college students, it is necessary to connect with enterprises, establish a specialized practical teaching system, and ensure that college students can quickly adapt to real job positions.

## 1. BUILDING A CURRICULUM SYSTEM ORIENTED TOWARDS PROFESSIONAL LEVEL

The promulgation of relevant policies and regulations in China clearly indicates that in teaching in vocational colleges, the basic principle and concept should be "service", with the employment of college students as the main direction, and skill level as the foundation. Therefore, in the field of mobile communication technology in vocational colleges, such principles should also be followed, utilizing the level of vocational skills as the direction, and establishing practical course systems such as understanding and practice of the position, professional level education and training, and entry into the position internship. Based on on-site surveys of mobile communication equipment operators and

other enterprises, as well as questionnaire surveys of graduating college students, the job group of this major is clarified, and teaching objectives for this major are formulated accordingly. For example, in the job standards for mobile communication personnel, a practical course system is established, which is divided into project construction, project maintenance, project monitoring, and wireless network upgrading and improvement. The job standards require the ability to master the network infrastructure, adjust the hardware of wireless devices, and understand the principles of wireless devices. The main training content is the installation and repair of various equipment to ensure its effective operation. For project maintenance positions, it is required to grasp the network infrastructure and clarify the wireless equipment structure, actual maintenance and repair, etc. At the same time, the project monitoring position requires clear regulations on wireless device devices, etc [1].

## 2. BUILDING A PRACTICAL TEACHING GUARANTEE SYSTEM

On the one hand, to build a "dual teacher" teaching team, the mobile communication technology major is a highly practical profession, with relatively high standards for teachers. It requires teachers not only to have a high level of professional knowledge, but also to have strong practical operational skills. Therefore, vocational colleges should adhere to the policy of combining professional knowledge and practical abilities, and developing teaching and research together, attracting renowned domestic and foreign enterprise technology personnel. They should also encourage in-service teachers to participate in teaching and training organized by the Ministry of Education, so that their professional abilities can be enhanced and improved. Teachers can also go to communication enterprises for practical operations, so that they can better understand the talent needs of the mobile communication industry, Enhance their teaching experience and strive to build a professional and high-level "dual teacher" teaching team. On the other hand, we need to improve the practical teaching

review and evaluation system. In previous educational review and evaluation work, the key was to use the performance and grades of college students in the classroom as the basis for evaluation. However, this form of evaluation is not consistent with the characteristics of practical teaching review and evaluation. For practical teaching review and evaluation systems, it is necessary to take vocational skills and levels as the core, and deepen consideration and reflection on them. Various evaluation and review models should be used to strictly and comprehensively consider the learning effectiveness of college students through practical education related theoretical content training, practical training base learning, and school enterprise cooperation demonstration. By utilizing practical education review and evaluation methods, we can stimulate the enthusiasm and desire of college students to learn, thereby enhancing the quality and effectiveness of practical teaching [2].

### 3. CONSTRUCTION OF INNOVATIVE CAMPUS PRODUCTIVE TRAINING BASE

3.1 Building specialized training classrooms based on enterprises. Introduce enterprises and use the training base jointly built by schools and enterprises as a means to improve the existing campus laboratory, and comprehensively update it based on the production process and technology of the enterprise. On this basis, a comprehensive training room centered on professional skills will be established, which includes a base that integrates various functions such as education, training, judgment, learning, and service. The advantages of this training room include: firstly, being able to engage in scientific communication with enterprises and introduce relevant resources; Secondly, based on the professional level of universities, comprehensive construction of training bases should be carried out, in accordance with student cultivation standards, to promote students to achieve the effectiveness of improving their overall skills from basic abilities to practical training; Once again, the testing and inspection of the training base can be certified by a third party, and the job standard content can be integrated into the training measures through engineering methods. Vocational requirements, industry needs, etc. can be used as a review system for training effectiveness, thereby creating good conditions for building an effective curriculum system. Finally, as the training room is established in accordance with the actual work standards of the enterprise, efforts should be made to implement job education for personnel, in order to achieve the sharing of the college training room.

3.2 Based on the training base, build a genuine work atmosphere. On the one hand, students in vocational colleges generally have strong hands-on abilities and can organize students to participate in entrepreneurial activities in practical work to adapt to the positions of enterprises. By exchanging professional skills with

classmates, their enthusiasm for learning and job skills have been greatly improved. On the other hand, for communication majors, the expansion of school network operations, maintenance of terminals, and operation and maintenance of telecommunications equipment are all practical job responsibilities that can be carried out through visits, learning, and practical work. Because communication equipment such as program-controlled switches are controlled by operators, agreements can be signed with them to make student internships a prerequisite for entry, allowing them to engage in enterprise learning and gradually participate in equipment maintenance. This can establish a training base based on their own practical work.

3.3 The main problem with enterprise training bases is that the enterprise is the key, and schools can only join. This can easily lead to practical teaching often having to adapt to the specific standards of the enterprise, making it difficult to achieve the conventional goals of professional cultivation. Through a comprehensive campus training base, introduce enterprise production engineering, and establish a training base in the form of a factory on campus. For example, according to the production needs of enterprises, expand mobile terminal production training bases, and closely integrate the mobile phone production process with enterprise production and student internships through the sharing of school enterprise resources [3].

### 4. CONCLUSION

In the context of the rapid development of mobile communication technology, the demand for relevant talents in the mobile communication industry is also increasing. In order to enable students to quickly integrate into social positions after graduation and achieve effective connection between schools and enterprises, it is necessary to strengthen the construction of practical teaching systems, guide by professional level, establish a mobile communication technology professional course system based on professional abilities, and improve practical training bases. To maximize the utilization of the characteristics of school enterprise cooperation, achieve the goal of win-win cooperation between schools and enterprises, and establish a set of practical teaching assurance system to ensure the scientific and rational implementation of practical teaching.

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# On the Effective Integration of Craftsman Spirit Cultivation and Higher Vocational Ideological and Political Education

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**Abstract:** In recent years, under the background of education reform and innovation in China, the education and teaching methods of many disciplines have undergone changes. Among them, ideological and political education in vocational colleges has received great attention from everyone. Due to the rapid development of society and the increasing demand for talents in various industries, traditional education concepts are no longer able to meet the requirements of various industries. In order to meet the requirements for talent utilization in various industries as soon as possible, Integrating the spirit of craftsmanship with ideological and political education in vocational colleges aims to help students in vocational colleges continuously improve their comprehensive quality level and lay a solid foundation for their future work, learning, development, planning, and more. In this article, the author analyzes the effective integration strategies between the cultivation of craftsmanship spirit and higher vocational ideological and political education.

**Keywords:** Craftsman Spirit; Cultivate; Higher Vocational Education; Ideological And Political Education; Fuse

## 1. BASED ON THE SPIRIT OF CRAFTSMANSHIP, IMPROVE THE GOALS OF IDEOLOGICAL AND POLITICAL EDUCATION IN VOCATIONAL COLLEGES

To fully integrate the spirit of craftsmanship into the ideological and political classroom of vocational colleges, it is first necessary to guide students to have a correct understanding of the spirit of craftsmanship, such as through teaching content, case analysis, and other methods to guide students to correctly understand and understand the connotation and value of the spirit of craftsmanship. Let students understand that the spirit of craftsmanship represents a high degree of unity between professional skills and professional ethics, and is an important force in achieving personal value and social development. Based on the spirit of craftsmanship, improve the teaching objectives and requirements of vocational ideological and political classrooms, and set clear

goals, including cultivating students' pursuit of professional skills and spirit of excellence, establishing correct professional ethics and ethical concepts. These goals should be in line with the characteristics and requirements of vocational education, and can promote students' comprehensive development and enhance their employability.

The teaching content of ideological and political classes in vocational colleges should be closely combined with actual teaching work. Through practical cases, industry reports, and other methods, students should have a deep understanding of typical representatives of craftsmanship spirit and excellent practical experience in different fields. At the same time, guiding students to apply the spirit of craftsmanship into practice, cultivating their ability to develop practical skills and solve practical problems, and at present, society has increasingly high requirements for professional talents, such as students' professional literacy and comprehensive quality level. Therefore, in the process of ideological and political education, teachers should strengthen knowledge learning and skill training to improve students' professional level and practical operation ability. At the same time, through professional ethics training, guide students to establish correct professional ethics and ethical concepts, and promote them to become highly professional craftsmen.

Finally, the spirit of craftsmanship emphasizes the pursuit of excellence and innovation. Therefore, in vocational ideological and political classrooms, effective teaching methods should be used to stimulate students' innovative spirit, cultivate their innovative thinking and creativity, such as heuristic teaching and project practice, encourage students to propose new ideas and solutions, and cultivate their innovative spirit and practical ability. At the same time, personalized teaching strategies are adopted based on students' personalities and characteristics, providing diverse learning resources and methods. Fully respect students' interests and needs, enable them to actively participate and develop in learning, and stimulate their interest and motivation in learning.

## **2. PROMOTING THE INTEGRATION OF IDEOLOGICAL AND POLITICAL EDUCATION WITH PRACTICAL TEACHING**

In order to help the ideological and political education of vocational colleges better implement the spirit of craftsmanship and ideological and political education work, it is necessary to design practical and high-quality teaching activities as soon as possible. Firstly, these course designs should be combined with specific industry practices and vocational skill cultivation, through case analysis, project practice, and other methods, so that students can experience and feel the importance and value of craftsmanship spirit in practical operations. At the same time, the school should actively organize practical activities such as student visits to enterprises and internships, so that students can personally experience the application and value of craftsmanship spirit in practical work. At the same time, encourage students to participate in social volunteer services and other public welfare activities, cultivate their sense of responsibility and dedication. In addition, in order to promote the integration of ideological and political education and practical teaching, teachers need to change their roles from traditional knowledge imparters to guides and mentors. Teachers should have industry experience and practical ability to guide students to learn ideological and political knowledge and cultivate craftsmanship spirit in practice. Teachers should also pay attention to students' practical achievements and feedback, and provide timely guidance and evaluation [1]. At the same time, schools should create a practical activity platform for students to promote the integration of ideological and political education and practical teaching, such as setting up training bases, laboratories, and innovation studios, providing students with opportunities for practical training. They can also work closely with enterprises to provide practical projects, internship opportunities, etc., so that students can exercise and improve themselves in practical work. Finally, higher vocational colleges should establish a practice achievement display and evaluation mechanism, such as organizing practice achievement display competitions, selecting exemplary individual and other activities, so that students' practice achievements can be recognized and affirmed. At the same time, schools should also establish an effective evaluation system to comprehensively evaluate students' performance in practice, including the cultivation of craftsmanship spirit. Through practical achievement demonstration activities, not only can communication and sharing between teachers and students be strengthened, but more practical experiences and cases can be shared, encouraging students to share their practical experiences and experiences. Promote students' understanding and application ability of craftsmanship spirit through communication and sharing [2].

## **3. CREATE A TEACHING ATMOSPHERE AND ENHANCE LEARNING INTEREST**

In order to promote the effective integration of ideological and political education in vocational colleges and the spirit of craftsmanship, teachers must create a good learning atmosphere for students, enhance their learning enthusiasm and interest. The specific creation methods can be started from the following points:

Firstly, in order to create a teaching atmosphere, schools can create teaching environments with professional characteristics tailored to different majors and subject characteristics. For example, building practical venues such as laboratories, maker spaces, and simulation workshops, allowing students to personally participate in practical skill training and project practice. This teaching environment can stimulate students' interest in learning and cultivate their recognition and pursuit of the spirit of craftsmanship.

Secondly, in order to strengthen the integration of artisan spirit cultivation and vocational ideological and political education, schools can invite professional mentors and industry professionals with rich work experience to provide guidance and lectures. They can share their successful experiences and cultivate the spirit of craftsmanship, setting an example for students and inspiring them to pursue and identify with the spirit of craftsmanship.

Thirdly, in order to create a teaching atmosphere, schools can increase the time and space for practical teaching. For example, arranging long-term internships or project practices allows students more time and opportunities to apply what they have learned and apply the spirit of craftsmanship to practical work. In addition, sufficient resources and support can be provided for students to fully demonstrate and develop the spirit of craftsmanship in practice.

Fourthly, in order to encourage students to cultivate the spirit of craftsmanship, schools can establish awards and honors for cultivating the spirit of craftsmanship, and commend and reward students with outstanding craftsmanship. This can stimulate students' enthusiasm and competitive awareness, and further promote the cultivation and inheritance of craftsmanship spirit.

Fifthly, by organizing relevant professional competitions and exhibition activities, schools can create a teaching atmosphere for the integration of the cultivation of craftsmanship spirit and vocational ideological and political education. For example, organizing skills competitions, design exhibitions, and other activities to encourage students to showcase their professional skills and innovative achievements. Such activities can stimulate students' enthusiasm for learning and career pursuit, creating a strong atmosphere of craftsmanship spirit.

## **4. CONCLUSION**



In summary, in this article, the author analyzes the effective implementation strategies for the integration of craftsmanship spirit cultivation and vocational ideological and political education, based on the spirit of craftsmanship, improving the goals of vocational ideological and political education, promoting the integration of ideological and political education and practical teaching, creating a teaching atmosphere, and enhancing learning interest.

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# Feasibility Analysis on the Construction of Education Development Strategies for International Students in Jiangsu Vocational College

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**Abstract:** In response to the call of the country to build the "the Belt and Road", Jiangsu higher vocational colleges actively cultivate international talents serving the "the Belt and Road" construction and actively serve the national strategy. the education of foreign students in China has developed rapidly, its international influence is growing, and its international school running level is constantly improving. From the perspective of building the brand of China's higher vocational education, Jiangsu higher vocational colleges effectively control the quality of the education of foreign students in China, the article analyzes the feasibility of constructing strategies for the development of international student education in Jiangsu Vocational College.

**Keywords:** Jiangsu; Vocational Colleges; International Students

## 1 THE INTRODUCTION OF POLICY DOCUMENTS AT THE NATIONAL LEVEL HAS SIGNIFICANTLY INCREASED THE NUMBER OF OVERSEAS STUDENTS FROM COUNTRIES ALONG THE "THE BELT AND ROAD".

On July 15, 2016, the Ministry of Education issued the "Promoting the Joint Construction of the the Belt and Road" Education Action, which clearly pointed out that China will further promote regional education openness and exchanges, strengthen education cooperation with countries along the "the Belt and Road", provide talent support for the joint construction of the "the Belt and Road", promote the sharing of quality education resources, and build China into a popular destination for students from countries along the "Belt and Road". the Action Plan for Innovative Development of Higher Vocational Education (2015-2018) clearly states: "To improve the foreign language communication ability of professional teachers in higher vocational colleges, encourage exemplary and border area higher vocational colleges to use their school brand and professional advantages to attract

foreign students to study in China, and continuously expand their scale.

According to statistics, the number of international students studying in China exceeded 440000 in 2016, an increase of 35% compared to 2012, and China has become the largest destination country for studying in Asia. There were a total of 207746 international students studying in China from 64 countries along the route, a year-on-year increase of 13.6%, higher than the average growth rate of various countries. Since the implementation of the "the Belt and Road" strategy, the number of exchange students, academic students and language students in China's higher vocational colleges has shown a significant increase trend, and students are mainly from countries along the "the Belt and Road", such as Indonesia, Laos, Myanmar, Vietnam, Thailand, Nepal, India, etc. According to incomplete statistics, in 2013, 8 national demonstration vocational colleges in Shanghai, Guangzhou, Zhejiang, Jiangsu, Chongqing, and Hunan recruited a total of 198 international students, including 45 academic students.

## 2. JIANGSU PROVINCIAL GOVERNMENT POLICIES PROMOTE THE RAPID DEVELOPMENT OF HIGHER VOCATIONAL COLLEGE EDUCATION FOR INTERNATIONAL STUDENTS IN CHINA.

In 2010, according to the overall plan of the country to deepen the comprehensive reform of the education system, Jiangsu Province applied to become one of the four pilot provinces in the country to "improve the system and mechanism for cultivating international students and expand the number of international students". Jiangsu Province has incorporated international student education into the overall plan of higher education reform and development, and the scale, quality, and structure of international student education are listed as basic indicators for the internationalization and modernization of higher education. A series of policies have been introduced to encourage and support universities, including

vocational colleges, to recruit international students, such as formulating the "Study Abroad in Jiangsu" action plan, selecting target (cultivation) schools for studying abroad in Jiangsu, establishing projects to build high-quality English courses for foreign students in education, selecting outstanding talents for studying abroad in Jiangsu, and incorporating foreign student education teachers into university teacher development plans the opening of the Jiangsu Provincial Government Jasmine Scholarship to international students in vocational colleges has greatly encouraged the enthusiasm of vocational colleges to recruit international students. Jiangsu vocational colleges have transformed from reserve forces to new forces in recruiting international students. In 2014, there were only 1051 international students studying in Jiangsu vocational colleges, including 322 academic students; By 2018, the number of international students on campus had reached 8353, with a total of 6187 academic students, a 7-fold and 18-fold increase over the past four years. the Ministry of Education announced that in 2018, the number of international students from universities in China exceeded 490000, an increase of 0.62% compared to the previous year. Academic students increased from 49.38%.

### **3 JIANGSU HIGHER VOCATIONAL COLLEGES HAVE MADE OUTSTANDING ACHIEVEMENTS IN ACTIVELY SERVING THE "THE BELT AND ROAD" INITIATIVE.**

More than 90% of the foreign students enrolled by vocational colleges in Jiangsu Province come from countries along the "the Belt and Road". Different from ordinary undergraduate colleges, the biggest advantage of higher vocational colleges is that they have natural close ties with industrial enterprises, which are the pioneers of the "the Belt and Road" construction. Since the "the Belt and Road" initiative was put forward, Jiangsu higher vocational colleges have played their own advantages, actively carried out education for overseas students in China, directly served Chinese enterprises "going global", and provided them with important human resources support. These international students have been studying and living in China for three years, not only able to undertake professional technical work, but also engage in Chinese translation work related to their majors. What Chinese enterprises value the most is that they not only understand Chinese culture but also familiarize themselves with their own national conditions, playing a good communication role.

The Education of International Students in Jiangsu Vocational Colleges Continuously Improves the Internationalization of Higher Vocational Colleges  
Jiangsu's vocational education has always been at the forefront of the country, with the first vocational university, the first county-level university, and the first Sino German cooperative vocational school. As

an important birthplace of modern vocational education in China, Jiangsu has created multiple "national firsts" in the field of vocational education, with a proportion of high-quality resources ranking first in the country. Continuously improving the level of international education is also an inherent requirement for the high-quality development and competitiveness of Jiangsu vocational colleges. Jiangsu vocational colleges actively learn from undergraduate colleges and combine their own characteristics to continuously explore the system and mechanism suitable for the education of international students coming to China. They gradually accumulate experience in education and teaching management, cultivate a group of management personnel and teaching staff with certain foreign language skills and cross-cultural communication abilities, and expand the school's educational horizons. In the process of cultivating employees for corporate orders, some internationally recognized majors have improved the international compatibility and comparability of their curriculum systems. the positive feedback from employers after the graduation of international students has further strengthened the school's confidence in running the school. Following the pace of "going global" Chinese funded enterprises, Jiangsu higher vocational colleges have transformed the experience of education and training of foreign students from countries along the "the Belt and Road" into the courage of education output. Many higher vocational colleges have made substantial steps to run schools abroad, such as the Sihanouk Industrial and Commercial College of Cambodia jointly sponsored by Wuxi Commercial Polytechnic Institute and Red Bean Group, which is the first overseas university of school enterprise cooperation joint-stock system in China. the internationalization of education in Jiangsu vocational colleges is at the forefront of the country. According to the "Annual Report on the Quality of Higher Vocational Education in China" released in 2017, 2018, and 2019 for three consecutive years, Jiangsu vocational colleges have performed outstandingly among the "Top 50 International Influencers", with 14 schools listed in 2016, increasing to 17 in 2017, and 18 in 2018.

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# Reflections and Suggestions on the Construction of Aesthetic Education in Vocational Colleges

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**Abstract:** In the context of education reform and innovation in China, many educational and teaching methods have undergone changes. Among them, aesthetic education in vocational colleges is highly concerned by everyone. With the rapid development of society, the demand for talents in various industries is constantly increasing, gradually shifting from focusing on professional skills to focusing on comprehensive quality levels. Therefore, according to this situation, vocational colleges should strengthen the implementation of aesthetic education work. In this article, the author analyzes the development process of the concept of aesthetic education and explores relevant suggestions for the construction of aesthetic education in vocational colleges.

**Keywords:** Vocational Colleges; Aesthetic Education; Construction; Thinking; Proposal

## 1. THE DEVELOPMENT COURSE OF THE CONCEPT OF AESTHETIC EDUCATION

Aesthetic education refers to an educational approach that promotes the comprehensive development of individuals through the cultivation of their ability to perceive, understand, and express beauty. This concept originated in the West and can be traced back to the ancient Greek period. The ancient Greek philosopher Plato believed that the pursuit of beauty was one of the fundamental elements of human spiritual civilization, and regarded it as part of educating the human soul. Over time, aesthetic education has gradually been regarded as an independent educational theory and practical method. In the late 19th and early 20th centuries, educators in Europe and the United States began to propose theoretical views on aesthetic education as an important component of school education. During this period, aesthetic education placed more emphasis on aesthetic education, cultivating students' aesthetic taste and artistic appreciation ability through appreciation and understanding of beauty. By the mid-20th century, the concept and content of aesthetic education had undergone some changes. In the United States, aesthetic education began to be combined with holistic education theory, emphasizing the

comprehensiveness of art education and the goal of comprehensive human development. American educator John Dewey proposed the "empiricism" educational theory, advocating the cultivation of students' aesthetic and artistic abilities through practical experience and creative activities. In recent years, with the development of society and the progress of cognitive science, the concept of aesthetic education has further expanded. Modern aesthetic education places greater emphasis on cultivating individual creativity, critical thinking, and interdisciplinary abilities, providing students with diverse artistic experiences and practical opportunities. Aesthetic education is not limited to school education, but also includes artistic activities in social environments such as communities, museums, and art groups [1].

## 2. SUGGESTIONS ON THE CONSTRUCTION OF AESTHETIC EDUCATION IN VOCATIONAL COLLEGES

### 2.1 Pay attention to the construction of aesthetic education teachers

In order to better carry out aesthetic education work in universities, it is necessary to strengthen the importance of building an aesthetic education teacher team. Firstly, it is necessary to actively cultivate and introduce an aesthetic education teacher team, cultivate professional teachers with artistic literacy and teaching abilities, and enhance teachers' professional knowledge and teaching skills in aesthetic education through relevant training and training activities, inviting industry experts to teach, and other methods. In order to improve the team of aesthetic education teachers, encourage cooperation and exchange among teachers, promote experience sharing and teaching resource sharing, the school also organizes regular teaching and research activities, lectures, seminars, etc. to provide opportunities for teachers to learn and grow. In addition, vocational colleges also need to provide good aesthetic education teaching facilities and equipment, such as art rooms, music rooms, dance rooms, etc., to provide students with places to practice aesthetic education. At the same time, attention should be paid to creating an

environment for aesthetic education teaching, creating a positive and active atmosphere, and stimulating students' artistic potential and creativity. Finally, vocational colleges should establish cooperative relationships with local art galleries, concert halls, theaters, and other cultural institutions to provide students with a broader platform for artistic exchange and exhibition. Activities such as visits, performances, and exhibitions can be organized to broaden students' artistic horizons and strengthen their connection with society [2].

## 2.2 Intensify research on aesthetic education in vocational colleges

To improve the quality of aesthetic education teaching in vocational colleges, it is necessary to strengthen research on aesthetic education. This aspect requires policy support from relevant departments, schools, governments, etc. For example, vocational colleges can establish specialized aesthetic education research institutions or centers to organize and promote research work in the field of aesthetic education. This institution can undertake research on aesthetic education courses and teaching methods, carry out innovative research on aesthetic education concepts and methods, promote the development of aesthetic education, and encourage teachers to actively participate in aesthetic education research, support them in conducting research on aesthetic education related topics and academic paper writing. A funding plan for aesthetic education research projects can be established to provide funding and resources to support teachers' research work. Secondly, vocational colleges can regularly hold aesthetic education seminars, academic seminars, and academic exchange activities, inviting domestic and foreign experts and scholars to share the latest aesthetic education theory and practical achievements. Through these activities, promote academic exchange and cooperation in the field of aesthetic education, broaden ideas, and improve research levels.

Practical teaching in aesthetic education is a crucial component of aesthetic education. Vocational colleges can conduct in-depth research on aesthetic education in different professional fields, explore effective teaching methods and evaluation systems. Through research on practical teaching, continuously improve and optimize the implementation effect of aesthetic education. In order to strengthen the effective integration of aesthetic education and multiple disciplines, it is also necessary to promote interdisciplinary research between aesthetic education and other disciplines, as there are many intersections and complementarities between aesthetic education and other disciplines. Teachers and students are encouraged to conduct interdisciplinary research between aesthetic education and other disciplines, such as aesthetic education and psychology, aesthetic education and design, to promote disciplinary integration and comprehensive development [3].

## 2.3 Exploring Traditional Chinese Culture

China itself is a country with a cultural history of 5000 years, and these excellent traditional cultures are inexhaustible spiritual treasures. Therefore, in the process of carrying out aesthetic education construction in vocational colleges, it is not necessary to explore and explore traditional Chinese culture. For example, vocational colleges can add courses on traditional Chinese culture, including Chinese literature, Chinese philosophy, Chinese art, Chinese history, and other content. Through the study of these courses, students can understand and experience the connotation and spirit of traditional Chinese culture, cultivate interest and love for traditional culture, or organize students to participate in traditional cultural experience activities, such as calligraphy exhibitions, traditional Chinese instrument performances, traditional dance performances, tea ceremony experiences, etc. Through personal participation and experience, students can gain a deeper understanding and experience of the charm of traditional Chinese culture, and stimulate their interest and love for it.

In addition, vocational colleges can collaborate with local cultural institutions to explore and utilize traditional art resources. Traditional craftsmen can be invited to the school to show and teach skills, such as pottery, wood carving, Paper Cuttings, etc. At the same time, encourage students to participate in the learning and creation of traditional art, and cultivate their understanding and inheritance awareness of traditional craftsmanship. Secondly, traditional cultural exhibitions can also be held to showcase traditional Chinese artworks and cultural relics, such as traditional cultural performance activities such as Peking Opera, Pingtan, acrobatics, etc., allowing students to experience the charm of traditional art firsthand and increase their sense of identification with traditional culture. Finally, vocational colleges should encourage students to carry out traditional cultural research projects and cultivate their research abilities and academic literacy. A reward plan for traditional culture research can be established to provide funding and guidance resources, encourage students to delve deeper into certain aspects of Chinese traditional culture, and promote the inheritance and innovation of traditional culture.

## 3. CONCLUSION

In summary, in this article, the author analyzes the development process of the concept of aesthetic education, and elaborates on relevant suggestions for the construction of aesthetic education in vocational colleges, such as emphasizing the construction of aesthetic education teachers, increasing research on aesthetic education in vocational colleges, and exploring traditional Chinese culture.

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# A Study of EFL Learners' Processing Mechanism on Prefix Derivatives

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**Abstract:** This paper investigates the processing mechanisms of 3 types of English bilingual prefix derivatives: semantically transparent, semantically opaque and orthographically related, in Chinese learners with different second language proficiency by comparatively analyzing the priming effects of different types of word pairs using a word base-whole-word masking priming experimental paradigm. The results showed that (1) the priming effects of the three types of English bilingual prefix derivatives were significant; (2) the differences between the priming effects of semantic transparency-related and semantic obscurity-related prefix derivatives were not significant, accordingly, this study concluded that semantic transparency does not affect the processing of English bilingual prefix derivatives; (3) the response time and correctness rate of English bilingual prefix derivatives processed by Chinese learners with high proficiency levels were significantly higher than those of Chinese learners with low proficiency levels, suggesting that the processing mechanism of English bilingual prefix derivatives by Chinese learners with different bilingual proficiency levels is significantly different from that of Chinese learners with different bilingual proficiency levels. Chinese learners of English, suggesting that bilingual proficiency is an important influence on Chinese learners' English bilingual prefix-derived word processing.

**Keywords:** Bilingual Processing of English; Prefix Derivatives; Semantic Transparency; Dual-route Models

## 1. INTRODUCTION

Derived word mental representation and processing mechanisms have been the subject of extensive attention in psycholinguistic research. The study of derivative word processing in different languages can not only provide evidence support for cross-linguistic research, but also explore the universality and specificity of lexical processing mechanisms, which is especially important in second language acquisition and output. There are three theoretical models of derived word processing: whole-word processing (whole-word processing): derived words are extracted whole in the brain (Butterworth 1983). Decomposition processing: there are three models based on when decomposition occurs: the Supra lexical mode considers that derivatives are first

accessed to the whole-word meaning and then decomposed into morphemic units (Giraudo & Grainger 2001). The Prelexical model is based on morpho-orthographic information. And the Prelexical model is based on morphological-orthographic information. Derivatives are first decomposed into bases and affixes and then integrated into morphemic units (Taft&Forster1976). The hybrid model suggests that the Supra lexical model and the Prelexical model coexist in parallel and work together. model coexist in parallel and work together (Diependaele et al.2011). Dual-route processing refers to the fact that derivatives contain two channels: whole-word extraction and disambiguation processing (Schreuder & Baayen1995). There is considerable debate in China about whether semantic transparency affects derivational word processing, with some arguing that semantic transparency affects derivational word processing (Morris et al. 2007), while others hold opposite views (Rastle et al. 2004; Marslen-Wilson et al. 2008; Beyersmann et al. 2016). Relevant domestic studies have mainly dealt with the processing mechanism of Chinese learners' English bilingual derivatives, but with different findings. Some researchers support whole-word processing while others support decomposition processing, and the rest support dual-channel processing.

In similar studies in China, most of the studies on derivational word processing involve suffix words. Zhang (2021) suggested that derivatives with high familiarity are processed whole, while those with low familiarity are processed using decomposition processing. Li et al. (2014) found that intermediate-level English language learners have a relatively weak decomposition phenomenon for suffix words and there is a relatively weak decomposition phenomenon. Li (2018) further found that high-level English learners have a decomposition process for recognizing pseudo-derivatives consisting of root words and suffixes. Li et al. (2017) compared the recognition processing of derivatives by overseas students with that of domestic university students, and found that English proficiency has little effect on the recognition of suffixed words. Overall, these studies examined the processing of suffix-derived words in terms of word frequency, familiarity, and subjects' English level, and made some progress. There are fewer



studies on the processing of prefix words, such as Ni (2015) who has analyzed the linguistic features of prefix acquisition and the order of abrasion. Li & Taft (in press)'s study on the recognition and processing of prefix words found that English language learning is able to decompose prefix words. And the processing patterns of second language speakers with high vocabulary levels are closer to those of native speakers. Because prefix word recognition is related to language proficiency, this paper selects Chinese ELLs with high and low bilingual proficiency as subjects, and tries to explore the effect of bilingual proficiency on the processing of English bilingual prefix derivatives by Chinese EFL learners.

To summarize, most of the studies on the processing mechanism of Chinese English learners' derivatives have chosen suffixed derivatives as the research material, while prefixed derivatives, as an important part of derivatives processing, should be further explored for their processing mechanism. Second, whether semantic transparency affects derivational word processing has not yet reached a unified conclusion. Finally, the most studies on derivational word processing chose learners with high L2 proficiency but fewer studies chose low L2 proficiency. Based on this, the present study adopts a word base-whole word masked priming paradigm and a lexical judgment task, and takes three types of English prefix derivatives, semantically transparent, semantically opaque, and orthographically related, as experimental materials, and investigates the processing mechanisms of English bilingual prefix derivatives for Chinese learners with different levels of L2 proficiency by analyzing the effects of derivative priming effect and semantic transparency on their processing.

## 2. EXPERIMENTAL DESIGN

### 2.1 Research questions and theoretical hypothesis

We use a masked-priming paradigm and a lexical judgment task with semantically transparent, opaque, and orthographic English bilingual prefix derivatives as experimental materials. This study investigated the processing mechanisms of Chinese learners' English bilingual prefix derivatives, mainly probing the following three questions:

- (1) Is there priming effect for the 3 types of English bilingual suffix derivatives? If so, what are the triggers of the priming effect? If not, what factors inhibit the priming effect?
- (2) Does semantic transparency affect the processing of English bilingual suffix derivatives?
- (3) Does second language proficiency affect the processing of English second language suffix derivatives?

The presence or absence of an priming effect has been hypothesized based on whether there is a significant difference between related and unrelated word pairs in terms of response time or correctness

(Beyersmann et al. 2016), and the causation of a derivational word priming effect based on whether the difference between the priming effect and control baseline is significant (Rastle et al. 2004). And whether semantic transparency affects derivational word processing based on whether the difference between different types of derivational word priming effects is significant (Marslen-Wilson et al. 2008). Based on the above studies, we hypothesized:

(1) A priming effect exists if related word pairs of the 3 types of prefix derivatives differ significantly from unrelated word pairs in terms of response time or correctness. Conversely, there is no priming effect exists.

(2) If there is no significant difference between the priming effects of the 3 types of prefix derivatives, then semantic transparency does not affect the processing of prefix derivatives. Conversely, semantic transparency affects their processing.

(3) If there is no significant difference between high proficiency subjects and low proficiency subjects in the 3 categories of prefix-derived word priming effects, then bilingual proficiency does not affect prefix-derived word processing; conversely, bilingual proficiency affects their processing.

### 2.2 Subjects

The 50 subjects (23 males and 27 females) who participated in the experiment were students of a university in China, with an average age of 21.65. Among them, 25 subjects with high proficiency had passed the TEM-8, and 25 subjects with low proficiency had not passed the CET-4. All subjects were right-handed and had normal visual acuity or corrected vision.

### 2.3 Experimental material

The key materials are morphologically related words corresponding to prefixes (from Li & Taft in press). The materials in this study are categorized into three groups: Semantically transparent word pairs: the initiator has a clear morphological relationship with the target word and a direct semantic association (e.g., disagree-AGREE). Semantically opaque word pairs: the initiator has a clear morphological relationship with the target word, but no semantic association (e.g., REACTOR- ACTOR). Purely orthographically related word pairs: the initiator word is only purely orthographically related to the target word, without a derived morphological structure or any semantic association (e.g., STRANGER-ANGER). At the same time, 4\*20 irrelevant words were selected as starter words to form irrelevant word pairs with the target words (e.g.: disorder-AGREE; editor-SAIL). There was no significant difference between the starter words and target words in terms of word frequency, word length, and neighboring words at the six levels ( $p>0.05$ ). Pseudoword target words consisted of the true word changed by one letter, and pseudoword word pairs, like key stimulus word pairs, formed 4\*20 pairs of starter-pseudoword target stimulus pairs

(e.g., improve-FROVE; umbrella-BRELLU; weekly-CEEK; rubbish-FUB) and 4\*20 pairs of irrelevant starter-pseudoword target stimulus pairs (e.g.: resound-FROVE; timidly-CEEK; umbrella-BRELLU; perhaps-FUB).

The key stimulus words were divided into two groups according to a Latin-square design to ensure that each subject saw the target word only once. Prior to testing, college students not participating in the experiment were asked to rate the familiarity of all target and starter words on a 7-point scale, with 1 indicating that they did not recognize the word and 7 indicating that they were very familiar with the word. All word familiarity measures were above 5.

#### 2.4 Experimental procedure

This experiment 2×3×2 design, in which word pair type (semantically transparent / semantically opaque / purely orthographically relevant) and correlation (relevant / irrelevant) were within- subject independent variables, and second language proficiency (high / low) was a between-subject variable. Response time and correctness and priming effects were dependent variables.

The experimental program is written by E-Prime 2.0, all the start words and target words are in lowercase, font size is 28, and font is Times New Roman. firstly, a red gaze point “+” appears in the center of the screen, and the pre-masking character “#####” appears after 250ms, and the start word appears after 250ms. 80ms later, the start word disappears and the post-masking character “#####” appears, and the target string is presented after 50ms. 250ms later the starter word appeared. 80ms later the starter word disappeared and the post-mask “#####” appeared, 50ms later the target string was presented. The target string is presented after 50ms. The subject is asked to

Table 1 Mean RT and ACC for different word pair types

Second Language Proficiency	Word Pair Types	Related		Unrelated	
		RT (ms)	ACC (%)	RT (ms)	ACC (%)
High	Semantically Transparent	750.58 (196.22)	97.17 (3.31)	785.20 (177.72)	96.09 (5.83)
	Semantically Opaque	742.84 (213.53)	96.96 (5.83)	779.75 (200.66)	94.35 (6.45)
	Purely Orthographic	763.34 (188.38)	91.09 (6.21)	791.38 (215.94)	88.91 (7.06)
Low	Semantically Transparent	832.57 (218.03)	91.52 (6.30)	870.33 (206.19)	87.83 (7.66)
	Semantically Opaque	838.71 (207.21)	89.35 (8.57)	873.32 (205.13)	85.65 (8.16)
	Purely Orthographic	851.90 (216.02)	82.17 (8.51)	833.01 (211.31)	80.43 (9.40)

Paired-samples t-tests were utilized to compare their correctness in both correlated and uncorrelated

make a true/false word judgment of the string as quickly and accurately as possible. The target string disappears when the subject presses the key. If the word is true, press the “F”, and if not, press the “J”, with the left and right hands balanced between subjects. If the subject did not respond within 3000ms of the presentation of the target string, the subject moved on to the next trial. The experiment was completed individually for each subject in a language and brain science laboratory at a university. The experiment consisted of two phases, a practice phase of 10 trials and a formal phase of 280 trials, and lasted approximately 16 minutes, including three short breaks, after which the subjects were paid.

#### 2.5 Data analysis and results

We used SPSS 24.0 to perform repeated measures ANOVA and independent samples t-test on the data of 50 subjects separately, and the mean response times and correct rates for different word pair types are shown in Table 1 below.

### 3. DATA ANALYSIS AND DISCUSSION

#### 3.1 Priming effect

For the priming effects of different types of word pairs when responding, paired-sample t-tests were utilized to compare their response times in both correlated and uncorrelated conditions. For transparent word pairs, the difference between transparently relevant and transparently irrelevant was significant ( $t=-2.222$ ,  $p<0.5$ ). In the case of opaque word pairs, the difference between semantically opaque correlation and semantically opaque irrelevance was significant ( $t=-4.035$ ,  $p<0.01$ ). For orthographic word pairs, the difference between orthographically related and orthographically uncorrelated was significant ( $t=2.271$ ,  $p<0.5$ ).

conditions. For transparent word pairs, the difference between transparently correlated and transparently

uncorrelated was significant ( $t=-2.775$ ,  $p<0.5$ ). For opaque word pairs, the difference between semantically opaque correlation and semantically opaque irrelevance was significant ( $t=-2.490$ ,  $p<0.5$ ). In the case of orthographic word pairs, the difference between orthographically relevant and orthographically irrelevant was significant ( $t=2.144$ ,  $p<0.5$ ). The above results suggest that the semantically transparent, opaque, and purely orthographically related conditions of starter words produced a significant priming effect on target word recognition.

### 3.2 Impact of semantic transparency

A paired-samples t-test on semantically transparent related and semantically opaque related words showed that the effect of semantic transparency was not significant ( $t=-0.423$ ,  $p=0.673$ ), suggesting that semantic transparency does not affect the processing of prefix derivatives by Chinese learners of English.

### 3.3 Second language proficiency

According to Table 1, it can be seen that both response time and correctness rate of high proficiency subjects were significantly higher than those of low proficiency subjects. A between-subjects repeated measures ANOVA was conducted on the response times of the high and low proficiency subjects, and the results showed that there was a significant difference between the response times of the high and low proficiency subjects ( $p<0.01$ ) suggesting that the high L2 proficiency learners decomposed the lexemes more thoroughly under the same priming conditions for both groups of learners.

## 4. Conclusion

In this study, we investigated the processing mechanism of Chinese learners' English bilingual prefix-derived words using the masked priming paradigm of word base-whole word, and the results showed that the priming effect of prefix-derived words was significant for semantically transparent, semantically opaque, and orthographically related words versus semantically transparent, semantically opaque, and orthographically irrelevant words. In addition, the difference between semantically transparent-related and semantically opaque-related words was not significant, so Chinese English learners' prefix-derived word processing was not affected by semantic transparency, and all of their processing mechanisms were whole-word extractions, indicating that the Chinese English learners in this study had not yet mastered complex derivational morphological structures. Finally, the response times and correct rates of the high proficiency subjects were significantly higher than those of the low proficiency subjects. Therefore, Chinese low proficiency learners need to focus on the morphological information of derived words and continuously improve their sensitivity to morphological structures so as to activate the procedural memory system. English teachers need to

change their traditional teaching methods and guide students to change from rote learning to analyzing and calculating morphological structures, so as to improve their English bilingual proficiency.

There are some shortcomings in this study. First, the target words in this experiment were all high-familiarity words and did not involve the processing of prefix-derived words in English second language with medium and low familiarity. Second, this study only explored prefix-derived words and did not compare whether the processing mechanisms of prefixed and suffixed words were different for Chinese English learners with different levels of L2 proficiency. Finally, the subjects in this study were Chinese-English unbalanced bilinguals, which may be different from the results of the study on the processing mechanism of derivational words for balanced bilinguals. To summarize, the findings of this study need to be confirmed by more theoretical and empirical studies.

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# Analysis of the Current Research Status of Intelligent Cars

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**Abstract:** Intelligent vehicles are comprehensively applied to transportation related industry technologies, including modern intelligent computer technology, sensor technology, information technology, communication technology, navigation vehicle control technology, artificial intelligence control principles, and automatic and coordinated control principles of digital transportation, It is a relatively typical composite of modern transportation high-tech industrial system as the basic material support system and industrial technology foundation system in the current world.

**Keywords:** Smart Car; Transportation; Speed; Remote Control.

## 1. RESEARCH PURPOSE

Intelligent products are another type of intelligent new technology product entering the modern information society. They can also be vehicles that operate automatically according to their predetermined driving mode in a specific social environment, without relying on manual management, and can achieve their expected goals or pursue higher performance goals on their own. The main difference from general remote-controlled intelligent vehicles is that remote-controlled vehicles generally require manual control of steering, start driving and emergency stop, forward control, and start reverse.

Some mature and advanced intelligent remote control vehicles can even remotely control the automatic running speed of the vehicle itself. Nowadays, some commonly seen signal cars in some places actually belong to this type of intelligent remote control signal car. However, these intelligent cars mostly need to be programmed through computers to change the direction, start stop, and speed control of their vehicle's driving route, without the need for manual intervention. Operations and maintenance personnel can ultimately change the main direction of future intelligent vehicle development by constantly trying to modify computer programs. Therefore, an intelligent vehicle will refer to an intelligent robot with highly autonomous repetition and programming learning characteristics.

Intelligent vehicles mainly serve as one of the intelligent road traffic comprehensive road decision-making systems, which has the ability to perceive the intelligent road traffic environment in the surrounding areas. Then, the driver will

comprehensively plan and make road driving decisions based on the intelligent road traffic environment in their corresponding geographical location, Finally, many functions such as automatic continuous lane driving decision control in an intelligent highway environment can be ultimately realized, which are comprehensively applied to transportation related industry technologies such as modern intelligent computer technology, sensor technology, information technology, communication technology, navigation vehicle control technology, artificial intelligence control principles, and automatic and coordinated control principles of digital transportation, It is a relatively typical composite of modern transportation high-tech industrial system as the basic material support system and industrial technology foundation system in the current world.

Intelligent car systems are not only two important functional parts of the mobile and robot control systems composed of automobiles, but also play an increasingly crucial or important fundamental role in the development of economy, national defense, education, cultural undertakings, and family life management. It is undoubtedly an effective scientific tool carrier and theoretical experimental application platform for studying the generation of complex intelligent behavior models in the human brain and exploring the mysteries of new human thinking patterns.

## 2. RESEARCH STATUS

### 2.1 Research status of intelligent cars

The intelligent vehicle management system, as a new carrier for the comprehensive application and integration of various high-tech systems, is also one of the key technical requirements for the construction of intelligent transportation systems. The autonomous driving mode of intelligent vehicles is a universal implementation method, which is a technology where drivers can automatically and simultaneously complete a certain task or undertake multiple manual driving assistance tasks, It can either complete a certain step all at once or divide it into multiple steps to complete.

### 2.2 Current status of intelligent vehicle research abroad

The research history of intelligent vehicles abroad is relatively long, starting from the 1950s. Its development process can be roughly divided into

three stages:

The first stage: The 1950s, which began in the last century, was the early stage of development and research on intelligent vehicles in China. In 1954, the project research center of Barrett Electronics Company in the United States developed the first AGVS system (Automated Guided Vehicle System), which may be the first fully realized autonomous driving guided vehicle interconnection system in China today. Although this intelligent system is only a trailer type intelligent freight automation platform that operates independently on a fixed track, it is actually implemented to achieve unmanned intelligent driving, which is the most basic functional feature of this intelligent vehicle. Initially, in order to improve the level of unmanned automation technology for transportation vehicles in the entire warehouse, the technology research and development, design, and manufacturing of AGVS vehicles were carried out. Moreover, the specific application functions of this AGVS vehicle can only be limited to transporting items stored in the entire warehouse vehicle. With the further development of computer technology and information sensing technology, people will continue to deepen and deepen their basic research on intelligent vehicles.

The second major stage of development: Starting from the mid to late stages of development in the mid-1980s, the basic research on intelligent vehicles gradually relied on the research on related basic issues that had been carried out by some of the most advanced and developed countries in the world at that time, and some of them had already achieved significant results. Under the European background of the project number at that time, this series of explorations for new intelligent vehicle system technologies had already begun and carried out in the Prometheus project, which began around 1986 AD. During the Americas project, members of the American research team actively explored and researched the application and development of certain practical possibilities in high-speed intelligent vehicle systems, and officially established the National Association for the Study of Automated Highway Systems (NAHSC), which originated around 1995 AD. This has actually actively promoted and played a certain role in the practical development of intelligent vehicle technology research on highways in the United States. Before the establishment of the Asian Working Group, in order to comprehensively and systematically study the basic methods of China's high-speed intelligent automatic vehicle assisted road vehicles and navigation and driving control systems, In 1996, the China Japan project team initiated the establishment of the "Research on Advanced Vehicle Accompanying High Speed Cruise and Control System for Intelligent Autonomous Driving on National Freeways in Beijing, China"/"Research on Key Technologies of Intelligent Automatic Assistance

and Road Safety Driving Control on Freeways", which has made historic progress in the rapid development and overall innovation research of Japan's high-speed intelligent vehicle technology system in China. By the mid 1980s, due to the fact that many well-known companies around the world had started developing intelligent vehicle platforms, the research and design of vehicles and the development and manufacturing of new intelligent vehicle technologies had begun to spread around the world.

The third stage of development: Starting from the late 1990s, the most representative project was the development and research of the Navlab series engine at the Robotics Research Institute of Carnegie Mellon University in the United States. Eventually, the first batch of 10 autonomous vehicles (Navlab1 Navlab10) were developed and produced, achieving significant breakthroughs. From this, the development of intelligent vehicles has entered a stage of comprehensive, systematic, and large-scale development and research[1].

At present, several main research and development directions of intelligent vehicle technology in foreign countries are in the third stage of development. In the scientific and automotive design communities of industrial design and automotive design, many professional automotive research and production institutions are developing and producing representative intelligent vehicle technology products, including:

In 1985, the first VaMoRs intelligent prototype vehicle in the world was developed and designed by the German Federal University project team. It also used machine vision control methods for the first time to achieve and ensure automatic control of intelligent vehicles, including lateral driving speed and longitudinal movement direction. It was first tested on various outdoor road and highway vehicle systems, During this period, the maximum operating speed of 100km/h or above has been reached and exceeded. It provides a highly reliable visual system stability and can automatically enable the vehicle to stop and move, ensuring that relevant autonomous driving status information can be directly transmitted to the following driver at any time.

The Combi road system in the Netherlands mainly utilizes a magnetic navigation device installed on the road as a reference object, and can directly use a sensor with a laser array to detect various traffic obstacles, achieving a unmanned autonomous driving method used to complete sea round-trip and transportation of goods, Therefore, the design, development, and research of the lookout intelligent driving vehicle system installed in the Netherlands on the Rotterdam port road in France have mainly reflected its widespread application in road transportation and factory goods. At the same time, the southern Netherlands is further studying and

discussing whether it can ultimately apply certain technical issues of this high-speed system directly to the railway industry in China, The government authorities are also likely to be actively considering the need to consider additional investment or new investment in each highway dedicated high-speed cargo lane that can be fully operated using this road transportation lane system, while retaining their original built and owned highway lane system, It will enable high-speed transportation of goods from France directly to various parts of the world through the Port of Rotterdam.

### 2.3 Current status of intelligent vehicle research in china

Compared to being initiated earlier than other domestic and foreign countries, the academic community in China started relatively late in conducting basic application research on the comprehensive development of intelligent vehicle technology systems, After entering the early 1980s, around the mid-20th century, some research institutes in Chinese universities truly began to conduct basic application research on system technology and entered the emerging application field of this technology from the very beginning, Moreover, most of the basic research related to the automotive industry in China is still at a stage where it is only focused on basic research and work in a certain aspect, several subsystems, and individual technical fields of the automotive industry. Although we have mentioned that there is still a significant technological gap between China's automobiles and many other developed countries, the series of related technological research conducted by China in terms of intelligent vehicle technology is still far behind other Western and developed countries, But so far, our relevant research institutions have basically achieved a series of breakthrough research results, mainly including:

(1) In 2003, Shanghai FAW sedan and the National University of Defense Technology jointly developed and designed the first Chinese model of automatic cruise driving assistance vehicle. Its overall technical performance and indicators have reached the world's advanced level. Under the normal traffic conditions of the expressway, the maximum stable speed of the autonomous vehicle is 13 km/h, the maximum peak speed is 170 km/h, and it can also overtake[2].

(2) The chassis architecture of the 7B. 8 military outdoor autonomous vehicle still maintains a horizontal structure chassis, using the most traditional "perception modeling planning execution" algorithm. Its maximum straight line tracking speed can only reach about 20km/h, while the maximum speed for obstacle avoidance tracking is only about 5km-10km/h, The technical parameters of the 8098 series microcontroller mainly enable independent high-precision positioning and analysis of Beidou satellites, as well as calculation and data processing

control, and achieve high-speed and automatic remote driving of Beidou vehicles.

The research on intelligent vehicle control systems is also the core key foundational technology for building the relationship between intelligent transportation systems and ITS. The Ministry of Transportation of China has determined to include the research field of vehicle ITS control technology in the national level "Tenth Five Year Plan" for technological leapfrog development. At present, many teachers, students, and research institutions in domestic higher education institutions have conducted research on the key system technology and equipment application of in vehicle ITS control. With the continuous and rapid construction and development of ITS engineering technology research centers in China, a technical professional team has emerged in the automotive industry to conduct research and development on ITS related technologies. And now various transportation and vehicle enterprises have gradually begun to increase their continuous investment in the research and development of ITS and related intelligent vehicle technology products in China. We believe that through continuous cooperation, discussion, and exchange in various fields of related products, the comprehensive technical level of China's relevant ITS system and related intelligent vehicle industry will gradually be greatly improved.

Therefore, the rapid development of China's social economy will provide excellent conditions for the research of intelligent vehicles. Based on the current situation in China, conducting in-depth and detailed research on intelligent vehicles in some key areas is beneficial for its future development and can lay a solid foundation for its practical application in the future.

### 3. RESEARCH SIGNIFICANCE AND VALUE

With the increasingly rapid development of artificial intelligence technology, computer technology, and automatic process control system technology, the intelligent industrial control industry will undoubtedly usher in its unprecedented new era of intelligent development. Nowadays, intelligent engineering, computer science, mechatronics integrated systems, and automotive industry integrated control have begun to discuss intelligent systems in many important fields. Obviously, although the existing single traditional control implementation method still cannot fully meet the diverse functional needs of contemporary people, people also demand that the entire system become increasingly intelligent, Therefore, currently we can start to optimize and combine the new generation of intelligent control methods with our existing single intelligent control implementation methods to complement our strengths and improve the actual functional efficiency of our overall information system, thereby meeting the diverse needs of modern

people. The integration of computer control and electronic technology provides greater potential for innovation in making electronic devices more intelligent. Therefore, the intelligent technology and research and application fields of remote control electronic and intelligent systems will have very broad prospects.

Intelligent vehicle technology is currently a national hot research and development field, and its theoretical research content and practical application have extremely great theoretical depth and social practical significance. Its technical fields basically cover cutting-edge disciplines such as traffic intelligence and control, pattern and recognition control. At the same time, this is also a more efficient and convenient way for drivers to manage the driving safety of various vehicles, thereby improving the efficiency of vehicle operation control for each next vehicle on the road. In this way, we can further alleviate the serious traffic congestion in the road environment, and the development status quo that the efficiency of the Father Deer 9 has always been much lower than that of China, This advanced technology, which is completely led by unmanned intelligent driving assistance vehicles, is often referred to as a new technology for safe autonomous driving with unmanned assistance. In promoting the independent innovation system of technology in the automotive industry, we propose that if enterprises want to successfully break through some patent barriers in the foreign independent automotive industry, and at the same time, in the development of national defense technology, unmanned autonomous combat vehicles can be used to replace drivers to automatically complete various complex tasks in extremely high altitude dangerous and complex environmental conditions, This driving mode is also an important practical foundation for the development of unmanned mobile combat vehicle systems[3].

The innovative research practices conducted by Chinese scientists in the field of future intelligent

vehicle technology can not only directly promote and actively promote the rapid innovation, maturity, and large-scale development of cognitive intelligent computing technology models, key research technology design, and application verification system platform technology research systems for future audio-visual information, but also ensure the timely realization of scientific goals and tasks in key basic research development plans, It can also greatly promote the technological innovation of future Chinese scientific and technological personnel in the field of cognitive intelligent vehicle industry technology.

#### **4. RESEARCH SUMMARY**

Intelligent car systems are not only two important functional parts of the mobile and robot control systems composed of automobiles, but also play an increasingly crucial or important fundamental role in the development of economy, national defense, education, cultural undertakings, and family life management. It is undoubtedly an effective scientific tool carrier and theoretical experimental application platform for studying the generation of complex intelligent behavior models in the human brain and exploring the mysteries of new human thinking patterns[4].

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# Love Is the Soil of Growth

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**Abstract:** College counselors shoulder the responsibility of guiding and guiding students' healthy growth, and must have keen observation, high executive ability and high affinity. College counselors should focus on the mission and task of lighting the ideal light for students and illuminating the way forward. They should help students establish firm ideals and beliefs, provide care and warmth to students, and help students make good career planning, so that students can learn success.

**Keywords:** Counselor; Care; Family; Study.

College counselors are a special group of teachers, who play a significant role in the college education work, and are an important force to promote the work of students. Years of working experience as a counselor has made me realize that the foundation of the smooth development of a counselor lies in whether they can really care for students, because only by making students "kiss their teachers and believe their way" can they truly accept the management, guidance and help of counselors[1].

In my opinion, to be a good counselor, we need to make efforts from the following aspects.

First, with full enthusiasm and love, warm every student. The work of the counselor is complicated, and the object of his work: students' ideas are more complex. In order to do better student work in a short period of time, work enthusiasm, love and responsibility are particularly important. The former Soviet Union educator Tertosky said: "who love children, children love him, only love children, he can educate children."

Maslow's hierarchy of needs theory holds that human demand consists of eighth order, from low demand to high demand: physiology, safety, belonging and love, respect, knowledge seeking, aesthetics, self-actualization and transcendence. According to Maslow's hierarchy of needs, higher needs are only pursued when lower-level needs are met[2].

Many students are affected by the divorce of their parents in their original family, and they receive the lack of parental care since childhood, which leads to student weariness. For students whose low-level needs cannot be met and cannot pursue higher-level needs, counselors should pay attention to them.

Xiao Zhang, ranked the last in his class. In the final exam of the first semester of the freshman year, three out of nine courses failed. The student was not highly motivated to study and often skipped classes. After understanding that the parents divorced when

the student was four years old, Xiao Zhang sentenced to his father, the father and a new family. Xiao Zhang grew up with his grandparents, lacking the love of his parents and feeling insecure.

At the beginning of the new semester, Xiao Zhang often skipped classes, missed work, and had little enthusiasm for class. By understanding the situation with Xiao Zhang's roommates and monitor, Xiao Zhang played games most of his time in school and never studied hard. Usually also did not see him in contact with his parents, put a holiday to go to grandpa's home. I immediately got in touch with Xiao Zhang's father to learn about Xiao Zhang's native family. So I communicated with my parents respectively, hoping that they could care more about Xiao Zhang's study and life, so that Xiao Zhang could realize the care of his parents[3].

On the night of Mother's Day, after closing the dormitory door, the monitor checked the number of people in each dormitory, and found that Xiao Zhang did not leave and was not in the dormitory. I immediately called Xiao Zhang, Xiao Zhang said that he was homesick, secretly ran to his mother's house.

I realized that this is a typical case of student weariness caused by the lack of care from the family of origin. This kind of situation, solve more difficult, must play resultant force, and for a long time, can work. In view of Xiao Zhang's problem, I have formulated the following solutions.

## 1. SET UP A THREE-LEVEL SUPPORT GROUP TARGETED TO HELP

Set up a three-level support group composed of counselors, monitor, life committee member, study committee member and roommates, division of labor and cooperation, give Xiao Zhang more care, and provide all-round help to Xiao Zhang.

The first-level support echelon formed by me is mainly responsible for helping Xiao Zhang solve the difficulties in life and doubts in study. I often talked with him and helped Zhang according to the reality of his actual situation. Xiao Zhang is required to make progress every year, and only after five years can he learn something, learn the real craft, and embark on the ideal job.

The second echelon, composed of monitor, life committee member and study committee member, is mainly responsible for urging Xiao Zhang to attend classes on time and giving Xiao Zhang more care in life.

The third echelon, composed of dormitory leaders and roommates is mainly responsible for giving more

care to Xiao Zhang in his daily life and making him feel the warmth of the collective.

## **2. COMMUNICATE WITH XIAO ZHANG'S PARENTS REGULARLY HOPING THAT PARENTS CAN GIVE ZHANG MORE CARE**

In major festivals that are easy to miss relatives and cause emotional fluctuations, such as Spring Festival, Father's Day, Mother's Day and the Pure Brightness Festival, we communicate with Xiao Zhang's parents, urge them to call and send videos, enhance the relationship between father and son (mother and son), so that Xiao Zhang can feel the warmth of the family, so that his personality can get healthy development.

## **3. COMMUNICATE WITH THE TEACHER I HOPE THAT THE TEACHERS CAN HELP XIAO ZHANG TO FILL THE CLASS AND ASK QUESTIONS MORE IN CLASS TO GIVE HIM MORE AFFIRMATION**

Through our concerted efforts, I found that Xiao Zhang is slowly changing: can go to class on time, the teacher can understand the knowledge points; study, life have a small question can take the initiative to ask me, let me help. This year's Children's Day, Xiao Zhang rushed to find me happily, said to me: although I am not a child, but I received mom and dad gave me two gifts today, I was really too happy! The final exam of the second semester of the freshman year came as promised, and Xiao Zhang was full of confidence this time. Sure enough, hard work pays off. Xiao Zhang not only failed the 6 courses, but also got more than 80 points in two professional courses. I am so happy for Xiao Zhang's progress ! At the same time, I also deeply realize that love is really too important on the road of life growth, just like plants and soil.

Second, we should care for students from poor families and give them both spiritual and material help. Publicize the national and school financial aid policies to students, help students from poor families to apply for scholarships and grants, especially when students have special difficulties (such as family changes, illness in hospital, etc.), counselors should send warmth and love, and actively raise funds for financial aid. The counselors do a good job in the ideological and political work of the poor students, and make it clear that the economic difficulties of the poor students seriously affect their quality of life and study and their physical and mental health, and some students become the "double poor students" economically and psychologically. Accordingly, do the ideological and political work of poor students better than solve economic question simply The question is more important. The counselor should understand the general situation and individual situation of the poor students in the class in detail, go deep into the reality, apply the case, pay attention to the psychological counseling of the poor students, and help them mentally "poverty alleviation". To carry out frustration education, success education and

self-reliance and self-improvement education among students, cultivate their self-esteem, self-confidence, self-reliance, self-improvement consciousness, dispel the idea of "wait, rely on, want", through the development of ideological work, alleviate the psychological pressure of poor students, promote the healthy development of their personality, positive and optimistic face life.

Schools should carry out various forms of work-study activities to help students solve practical difficulties, and the best way to solve the problem of poor students is to let the poor students be independent. Schools should actively create conditions to carry out various forms of work-study activities, so that students can get life financial aid through work. It has established a scientific and complete funding system for students with economic difficulties, with the state student loan as the main content, the work-study as the important carrier, awards (assistance), state student loans, work-study, temporary hardship subsidies, and tuition reduction and exemption.

Third, to deeply understand, according to the characteristics of their own characteristics, to help students to do a good job in career planning. A healthy psychological state is the basic guarantee for students' study and work. In front of academic pressure, employment pressure and social pressure, students are easy to encounter psychological problems. Counselors need timely attention and guidance. First of all, we should pay attention to the cultivation of students' self-consciousness. Guide students to correctly understand themselves, encourage students to find and develop their own innate quality and potential, and find their own suitable position in their future career. Through the form of self-analysis and discussion, help students correctly understand themselves, clear direction of efforts, consciously add Strong quality training. Secondly, the students in the study, work, life of the psychological distress encountered in the timely counseling and consultation, to ensure that their mental health status is good.

During the freshman year, we should strengthen the cultivation of career planning consciousness. First of all, after enrollment, lectures or class meetings themed "how to adapt to college life" and "career planning", so that students can realize the importance and practicality of career planning, so as to master the methods and skills of career planning. Secondly, students are introduced to their majors, so that students can have a deep understanding of their majors, cultivate their interest in learning, and initially understand the direction of professional development. Through the development history of the college, management policies and campus environment introduction, students can understand the learning environment as soon as possible and adapt to the university life. Finally, we should pay attention to the students' adaptation in thought, study

and life The situation, to malpoor students timely guidance.

In the sophomore and junior years, I mainly guide students to lay a good foundation for professional learning, and have English, computer and other skills. And according to the needs of the professional to enrich their own knowledge and skills, through social practice to understand the professional employment prospects and job requirements, targeted to cultivate their own ability. For sophomore students in vocational colleges, while guiding them to learn professional knowledge, they should cultivate more vocational skills, create opportunities for them to participate in more vocational practice, understand the needs of enterprises, cultivate them, and do a good job Planning, to lay the foundation for the junior year of employment.

In the year of graduation, counselors should always pay attention to the needs and trend of employment guidance, understand the employment situation, grasp the employment policy, and strengthen guidance for students. Timely and accurately convey the recruitment information released by the school employment guidance center to the students, and do a good job in the employment guidance work according to the arrangement and deployment of the

school employment guidance center. Counselors should also be in the employment guidance problems found in the school employment guidance center feedback, in order to solve as soon as possible. And understand the students' ideological dynamics and psychological status, guide them how to adjust the employment concept when encountering employment problems, adjust self-cognition, establish the correct employment observe.

In order to keep pace with The times, better for students' career planning guidance services. Counselors themselves should also constantly receive professional and professional training to improve their ability of career planning and guidance. Only in this way can they really play a role of career guidance for students.

Education is a cloud pushing another cloud, and the chanting of a tree awakens the singing of another tree. Only pay the true feelings, true love, to exchange the students.

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# Challenges Faced By School Services And Countermeasures

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**Abstract:** In 2023, with the continuous development of social economy and education, the diversified and personalized needs of the student group are becoming more and more obvious. School services take on more responsibilities and challenges. How to promote the scientific and intelligent development of school services with the way of thinking and working to adapt to the development of The Times has become the main issue for school administrators at all levels to think and cope with.

**Keywords:** School; Challenge; Measure

## 1. INTRODUCTION

The services offered by the school are a way to show parents and their children that you care about them. Whenever a problem or doubt arises, it is important for educators to be involved, answer questions and help resolve problems. That way the parents know you want what's best for the child. Over time, they begin to trust you and feel that your school is the best place for their offspring[1].

## 2. CHALLENGES FACING SCHOOL SERVICES

As the number of schools increases, how can your school stand out. How to make students more willing to apply for your school. These are inseparable from the services provided by the school. For example, the comprehensive content of the school website, the user environment of the library, whether the teacher can clearly answer the various questions of the students on the computer or face to face. Therefore, the source of students is a challenge for school services[2].

2.1 It is difficult for students to communicate in the "internet era", and the cultivation of students' consciousness of rights brings challenges

In general, when students encounter service problems, the general practice is for teachers to first contact students for effective communication, and then solve the problem through the school's services[3]. In the "Internet Plus" era, in addition to communicating and coordinating with teachers, students also post micro-blogs and wechat to evaluate the school's services, and some students even post various problems in the school's services on the Internet. Some students exaggerate problems and distort facts. In our age of media, the impact is often enormous.

2.2 The increasing complexity of school organization poses a major challenge to school service delivery Diversity and inclusion are trends in the school. The

autonomy of school management, the diversity of funding sources, the diversity of teachers and students, the acceleration of school turnover, and the increase of teachers and students from different backgrounds have complicated the internal structure of the school organization and the responsibilities of the departments providing services to the school. Therefore, higher requirements are put forward for school services.

2.3 The service sector has a wide range of responsibilities and low service efficiency

The diversified development of colleges and universities leads to the complexity of the work of service departments and the wide range of responsibilities. Take me for example. I was responsible for arranging courses, checking student attendance, ordering teaching materials, arranging teacher training, and paying teachers, etc. I had to communicate with the academic affairs department, student management Department, Teachers Department, Finance department and other departments. Such a wide range of job responsibilities can lead to inefficiency and an inability to focus on doing each task accurately.

2.4 Lack of funding remains the most vexing problem for many schools in providing comprehensive services

The improvement of teachers' office environment, the improvement of students' classes, the improvement of dormitory environment, the replacement of service department facilities and so on all need financial support.

## 3. MEASURES TO DEAL WITH CHALLENGES

People's expectation of education is constantly increasing, prompting school management to face more and more pressure. How to deal with the expectations of all parties, neither too much indulgence of students, nor too strict restriction of students' personality, this is a difficult problem that educational administrators must solve. At the same time, the competition in the education market is fierce, and school administrators need to improve the level of school management to attract students.

### 3.1 Enhanced technology application

Schools should strengthen the construction of information technology, strengthen the ability of technology application, and build information campus. First of all, we need to do a good job in infrastructure construction to realize the

interconnection of various systems in the school and form an efficient information exchange platform. Secondly, the data analysis system based on artificial intelligence can be developed to analyze and apply all kinds of data to guide the school administration more accurately. At the same time, schools can promote online courses and distance education to provide students with a more contemporary learning style.

### 3.2 Construction of teaching staff

In the face of the challenges, the professional quality of university employees has new requirements: having good computer and network application ability; Good cooperation spirit and team work spirit; Good communication and interpersonal skills; Have a strong thirst for knowledge and self-study ability; Ability to adapt to new environment and new job; Innovation and pioneering ability

### 3.3 Establish the employment mechanism combining the fixed mechanism and the mobile mechanism

To change the existing single fixed employment mode, conditional units should actively implement the combination of fixed post and mobile post, full-time and part-time combination of employment methods. Encourage and support the flow of talents in public institutions, and promote the socialization and marketization of professional and technical personnel resources. School administrators need to pay attention to the scientific and intelligent management mode, from subjective decision-making to objective decision-making. In view of the diversified and personalized characteristics of student groups, schools should develop diversified management programs to stimulate students' passion and initiative in various ways. In addition, it is necessary to strengthen the construction of school culture, improve the enthusiasm and sense of responsibility of school administrators and teachers, so as to ensure the normal operation of schools.

### 3.4 Establish and improve the post evaluation and employment mechanism

To establish and improve the post evaluation and employment mechanism, and strive to establish an employment mechanism conducive to discovering, cultivating, retaining and motivating talents, it is necessary to professionalize and standardize the post setting and post responsibilities; Improve the assessment mechanism, and realize the incentive and supervision of in-service personnel; Guide the candidates to improve the awareness of competition and recruitment through job appointment, and promote the reasonable flow of personnel.

### 3.5 Strengthen quality education and create a good atmosphere

Pay attention to the education and training of existing personnel: strengthen the training of new teachers; Academic activities of teachers and experts; Teachers and enterprises, foreign personnel exchanges; Strengthen continuing education for all staff. Advocate four kinds of consciousness: service

consciousness, first-class consciousness, post consciousness and innovation consciousness; Use the advantages of project construction, training and learning business, adapt to the new working environment requirements.

3.6 Highlight the service characteristics of the school  
A school may build a distinctive school-running brand based on its geographical advantages, academic specialties or unique cultural heritage. This can attract more excellent students, teachers and resources, and enhance the brand effect and competitiveness of the school. At the same time, the school can actively expand the resources outside the school, with the help of the intellectual and material resources of the society to improve the teaching and management of the school, so as to promote the high-quality development of the school.

## 4. HOW CAN WE JUDGE THE SUCCESS OF SCHOOL SERVICES?

How can we judge the success of school service measures after school administrators have developed a series of measures? I think we can verify the following from the following two points.

### 4.1 Ask for feedback

We all need people to give us feedback so we can improve." --Bill Gates.

Feedback effectively reflects the success of school service operations and is the most direct way for students and parents to respond to school services. If students and parents are not satisfied with the school's service, what makes them uncomfortable? What services are not doing well? This can be answered by questionnaires from students and parents. Make it part of your school's monthly or quarterly routine. In this way, the school services department can know in time if there is a problem with their service and can take immediate action.

### 4.2 Whether the management is humane

People-oriented and humanized management is an important symbol to measure the success or failure of service management. The concept of "people-oriented" education service is an important requirement for university service operation under the new situation.

Take our school library as an example: Students can borrow and return books on three campuses (library to library). Can borrow books on behalf of the professor and send them to the professor's office; With the professor's consent, students can borrow books for professors through agent services; Helping students with disabilities access libraries to find books; Unless by appointment, a professor can never return a book until he or she is transferred or dies; There is no limit to how many books a teacher can borrow.

4.3 A school's national ranking and student achievement are important indicators of the success of its services

Student achievement is the ultimate goal of the

school's service delivery. When students are satisfied with the school's services, they can devote more time and energy to working hard, improving themselves and achieving their life goals.

### **5. CONCLUSIONS**

In short, the challenges and countermeasures of school service work require school administrators to start from various aspects, attach importance to school service, timely deal with the problems and challenges faced by service, and formulate a series of measures. It is necessary to keep up with the pace of The Times and rationally respond to the expectations of society, parents and students. It is also necessary to actively develop and apply new technologies,

encourage innovation and practice, and thus promote the development of high quality schools.

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# Introduction to Psychological Crisis Intervention for College Students

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**Abstract:** In the new era, college students are facing unprecedented challenges due to psychological crisis problems, college students' suicides, injuries, crimes (theft, injuries, etc.), depression, anxiety, etc. have been repeatedly reported, the article combined with the reality of college students' psychological problems of the manifestations of college students' psychological problems, analyzed the reasons for the emergence of college students' psychological problems, and study its policy on , in order to promote college students' psychological quality of the healthy development of college students.

**Keywords:** University Students; Psychological Problems; Manifestations; Causes; Optimization.

College students are a special social group, and also the hope of the new era of "assuming the great responsibility of national rejuvenation", and the backbone of national construction. Due to various reasons, in recent years, the mental health problems of college students in China have become more and more prominent, and the mental health problems have become an important factor hindering the comprehensive development of college students. Young college students are related to the happiness of every family, national rejuvenation and future development, so analyzing the psychological problems of college students and cultivating their sound personality has become a task that should not be delayed[1].

## 1. MANIFESTATIONS OF PSYCHOLOGICAL PROBLEMS AMONG UNIVERSITY STUDENTS

First, in terms of emotions. It is manifested as restlessness, nervousness, irritability, anxiety, fear, depression, loss of emotional control, temperamental, either great joy or great sorrow, and a sense of meaninglessness, emptiness, worthlessness, etc., towards life or life.

Second, in cognition. Nervousness, indifference, extreme conditions of cognition about things, pessimistic expectations about events happening around them, slow cognitive response, inability to correctly distinguish the differences and connections between things, and so on.

Third, in terms of behavior. It manifests itself in few words, short temper, unwillingness to participate in group activities, strange and incomprehensible behaviors, changing one's hobbies or daily habits,

material dependence, mechanical repetition of a certain thing, inability to concentrate on work, life and study, and sadness and crying for no reason.

Fourth, in the physical. Manifested as insomnia, dreamy, stomach bloating and discomfort, decreased appetite, abdominal pain, chest tightness, shortness of breath, dull gaze, lethargy, sighing and so on. If a state of crisis is maintained for a long time, it will make the body's immunity escape and have a more serious negative impact on the body[2].

## 2. CAUSES OF PSYCHOLOGICAL PROBLEMS AMONG UNIVERSITY STUDENTS

There are many causes of psychological crisis of college students, there are different causes from different perspectives, and there are interlaces between categories, the research on the causes of crisis has different opinions, but as far as college students are concerned crisis has its own characteristics, from the point of view of the growth of college students undoubtedly is not affected by the society, the family, the school education as well as the condition of the self.

### 2.1 Social factors

The rapid development of science and technology is accompanied by the high-speed operation of all aspects of society, everywhere is the high-speed use of time, everyone is working hard to achieve their own value, resulting in overpressure and overworked situation, in addition to overpressure and overworked college students also have to step into the university campus, for the new environment, interpersonal relationships will feel uncomfortable in the face of the gradual increase in the pressure of employment, the pressure of the examination and research, and in the heavy academic work, can not get out of the Haze, gradually produce low self-esteem, anxiety, fear and other psychological problems, these emotions mainly from the perception of reality bias, long-term psychological gap leads to emotional dissatisfaction.

### 2.2 Family factors

Parents are the first teachers of their children, so parents' habits and character traits, family's economic conditions, parents' relationship, education style, parents' relationship with their children, parents' expectations and so on will all affect their children. Nowadays, most college students are only children, growing up under the shelter of their parents for a long time, self-centered at home, lacking collective consciousness, unwilling to communicate with others

when encountering difficulties, unable to find solutions to problems, and easy to take the bull by the horns. In addition, parental relationships and family atmosphere often have a negative impact on their mental health[3].

### 2.3 School factors

Our students from childhood to adulthood are exam-oriented education, the school focuses on students' knowledge, technical training, but ignored the training of other factors such as psychological main, after the university a variety of social pressures such as a volcano like a gush, due to changes in living habits and learning styles, coupled with changes in the surrounding environment, over time the internal environment and the external environment become irreconcilable, resulting in anorexia, depression and other psychological problems, the formation of psychological crisis or even more psychological disorders. Psychological crises or even more serious psychological disorders may result.

### 2.4 Personal factors

Individual differences among college students in terms of gender, grade, whether they are only children, place of birth, family economic status, family structure, etc. make the emergence of their psychological crisis unique. Second, physiological factors, including differences in genetics, neurophysiology, and physiological health, also affect the psychological health status of college students. Thirdly, the personality traits of individuals and the character, attribution and coping styles formed by environmental influences in the process of growing up will also have an impact on the emergence of psychological crises among college students.

## **3. INTERVENTION IN PSYCHOLOGICAL CRISES AMONG UNIVERSITY STUDENTS**

### 3.1 Social and governmental aspects

Mental health education and management of college students is not only a campus issue, but also a family issue and a social issue. Attention is paid to the media publicity of knowledge related to college students' psychological crises and the creation of a social atmosphere, etc., so as to take the prevention of college students' psychological crises as an opportunity to improve and strengthen the linkage between the various social support systems of college students. Taking the new crown pneumonia in 2020 as an example, without the attention and coordination of the state, the role of any individual is limited in the face of such a large population of psychological crisis. Not only such sudden public health events, but also professional personnel and professional institutions are needed when accidents occur, but also the government and society need to pay great attention to establish various governmental agencies or civil organizations to specialize in psychological crisis intervention, for example, to broaden the channels and ways of linkage and cooperation among families,

schools and society, and to improve the linkage and cooperation system.

### 3.2 Family level

Another important place closely related to the emergence of college students' psychological crisis is the students' family environment, whether in the process of prevention, intervention or prognosis of college students' psychological crisis, the role played by the family should not be ignored. "Parents are the first teachers of their children", if parents can make their children feel respected and loved, teach their children the ability to deal with others, cultivate the quality of bravery and strength, and build up the positive emotions of their children, then the probability of having a psychological crisis will also be greatly reduced. Given that the family support system in the process of psychological crisis prevention and intervention of college students inevitably shows a low degree of concern, cooperation, low degree of awareness and other characteristics, in the future psychological crisis prevention of college students, the school needs to strengthen the cooperation with the family.

### 3.3 Schools

#### 3.3.1 Strengthen the management of mental health education

First, to strengthen the publicity of mental health knowledge. We have launched mental health knowledge publicity and education for all teachers and students in the form of college students' mental health education courses, psychological sand tray activities, and psychological knowledge lectures, so as to improve their mental health awareness and reduce the cognitive bias towards depression. Second, carry out students' mental health census and establish psychological files of key concern students. Schools regularly conduct mental health tests, follow up on students in need of key attention according to the test results, conduct re-tests and establish mental health files, provide continuous and effective services and help for college students with mental health problems and psychological crises, enhance the mental health level of college students, and improve the ability of college students to cope with psychological crises. Thirdly, create counseling conditions. As psychological counseling rooms in colleges and universities, they hold regular psychological lectures, psychological surveys, psychological counseling, psychological hotlines, psychological mailboxes and other forms of attention to the mental health of college students and the prevention of psychological crises.

#### 3.3.2 Play the backbone of the counselors

Counselors are the first-line workers in education, taking on the dual responsibility of educating people and educating talents. Counselors face students every day, and can be said to be the closest relationship between college students on campus, and they live with them day and night, and are able to observe



every move and change in the words and deeds of students in the daily management of the classroom. Therefore, in the psychological crisis intervention has a unique advantage, as long as the careful observation, will be the first time to find and understand the student's behavioral changes and thought dynamics. Counselors are not only the discoverer of the crisis and the collaborator of the psychological counseling room, but also can intervene and prevent the psychological crisis of the students in a targeted way through class group activities, theme class meetings or individual interviews.

To be competent in this work, counselors, first of all, need to undergo certain professional training and master certain professional knowledge. Schools should train counselors on a regular basis to help counselors understand what a psychological crisis is, what are the manifestations of a psychological crisis, and how to carry out a certain amount of psychological crisis intervention, so that they can find out the problems of students in time and do early prevention and early treatment. Secondly, when a psychological crisis occurs, counselors should react quickly, control the situation and deal with it as soon as possible. Counselors can intervene in a timely manner through the four-step method of "looking, smelling, asking and cutting", and in the process of looking, smelling, asking and cutting, they should adhere to the three principles: the principle of sincerity, the principle of understanding, and the principle of accompaniment. Finally, the principle of safety and confidentiality should be adhered to after the crisis intervention to prevent secondary trauma.

#### 3.4 Finding ones own position and correctly understanding oneself

A correct understanding of themselves in order to be a healthy person physically and mentally. College students should correctly recognize their own strengths and weaknesses, do a good job of career planning, clear their own values, know themselves

and their enemies, in order to be invincible in the social competition. University is a broad stage, we are playing different roles. When encountering things, we should respond positively and listen to other people's opinions in order to recognize ourselves. College students should be guided through learning and constant practice, through the comparison with others, constantly adjust their behavior, so that they develop in a good direction, words and deeds are consistent, to overcome bad emotions, in order to continue to recognize themselves in the future life, improve themselves, and avoid their weaknesses. To be a person with goals and responsibilities, play your role well, and be a contemporary college student who contributes to society.

#### 4. CONCLUSIONS

In short, at present, the mental health education in colleges and universities is a heavy task and a long way to go, parents, schools, and the community to work together, and actively play the strength of all parties, the psychological crisis of college students should focus on prevention, nip the problem in the bud, and in the case of problems occurring in a timely manner remedies and treatments, and strive to minimize the damage.

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# Discussion on Line Selection Technology for low Current Grounding Faults

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**Abstract:** In China's medium voltage distribution network, low current grounding is widely used. However, the most common fault in this system is a single-phase ground fault. Although there are many principles for fault line selection methods, in practical applications, the accuracy of fault line selection is not high. This article systematically summarizes and compares the basic principles, advantages and disadvantages, and applicability of the main methods for selecting low current grounding faults, and proposes the engineering problems that still need to be solved

**Keywords:** Low Current Grounding System; Fault Line Selection; Line Selection Technology

Low current grounding is widely used in China's medium voltage distribution network, including ungrounded neutral points and grounded neutral points through arc suppression coils. Under the low current grounding mode, when a single-phase grounding fault (also known as a low current grounding fault) occurs in the distribution network, although the voltage between the three phases to the ground may change, the line voltage between the three phases remains basically unchanged and does not affect the power supply to the load; At the same time, when a single-phase grounding fault occurs, the grounding current value is relatively low, and the potential harm to power equipment, communication, and personnel is also relatively small. Therefore, allowing the system to continue operating for a period of time with single-phase grounding to improve power supply reliability. However, overvoltage generated by low current grounding faults can easily lead to insulation breakdown of non faulty phases, leading to two-phase grounding short circuits. The problem of single-phase grounding fault line selection in low current grounding systems urgently needs to be solved to reduce unnecessary short-term power outages, prevent electric shock accidents that endanger personal safety such as wire drops, and improve the quality of power supply and the safe operation level of distribution networks.

## 1. LINE SELECTION METHOD FOR LOW CURRENT GROUNDING FAULTS

The single-phase grounding fault line selection of low current grounding systems is a method of determining the faulty line based on dedicated line selection equipment or shared equipment (such as

line protection) in substations and switching stations, using information generated by faults or additional information from other equipment. According to the different electrical quantities used, line selection methods can be divided into two categories: steady-state electrical quantity line selection methods and transient electrical quantity line selection methods.

### 1.1 Steady-state electrical quantity line selection method

The line selection method using steady-state variables must be established on the premise of stable grounding arc and fixed grounding resistance, and the actual on-site grounding faults include a certain proportion of intermittent arc grounding faults. Due to intermittent arc grounding faults that do not have a stable grounding arc, the grounding resistance constantly changes over time, which affects the reliability of steady-state line selection.

**Zero sequence current method.** In a neutral ungrounded system, the power frequency zero sequence current of the faulty line is equal to the sum of the capacitance currents to ground of all non faulty components (excluding the faulty line itself), and its amplitude is much greater than that of the non faulty line, with the direction flowing from the line to the busbar. The direction of the power frequency zero sequence current on non fault lines is opposite. The zero sequence current method utilizes the above features to achieve fault line selection, mainly including zero sequence overcurrent method, group amplitude comparison method, polarity comparison method, group amplitude phase comparison method, etc. [1-3]. For neutral point grounding systems through arc suppression coils, the compensation effect of arc suppression coils reduces the amplitude of faulty lines, and may even be smaller than non faulty lines, so zero sequence current method is not suitable.

**Zero sequence reactive power direction method.** In a neutral ungrounded system, the zero sequence impedance of the line series connection is much smaller than the impedance of the capacitance to ground. Ignoring the line impedance, the zero sequence current phase of the faulty line lags behind the zero sequence voltage by  $90^\circ$ , and the zero sequence reactive power flows from the line to the busbar; The zero sequence current phase of the non fault line leads the zero sequence voltage by  $90^\circ$ , and

the zero sequence reactive power flows from the busbar to the line. The zero sequence reactive power direction method utilizes the above features to achieve fault line selection [1-2]. For intermittent arc grounding faults, the fault current is severely distorted, and the calculation of power frequency zero sequence current has a significant error, which affects the accuracy of line selection. Similar to the zero sequence current method, the zero sequence reactive power direction method is not applicable to neutral grounded systems through arc suppression coils.

**Zero sequence active power direction method.** In the early stages of promoting the application of arc suppression coils, in order to solve the problem of zero sequence current method not being applicable, references [4-5] proposed a method of using the active component of fault current for fault line selection. The active power of the faulty line flows from the line to the busbar, while the active power of the non faulty line flows from the busbar to the line. Fault line selection is achieved by detecting the direction of zero sequence active power. In practical applications, detecting the direction of zero sequence active power usually adopts the method of directly calculating active power or comparing the phase relationship between zero sequence current and voltage. Due to the small active component in the zero sequence current, the reliability of fault line selection cannot be guaranteed.

**Harmonic component method.** Neglecting the compensation effect of arc suppression coils on harmonic currents [6], the amplitude of harmonic currents in faulty lines is the largest and the polarity is opposite to that of harmonic currents in non faulty lines. The harmonic currents in faulty lines flow from the line to the busbar, while non faulty lines flow from the busbar to the line. The harmonic component method utilizes the above harmonic current characteristics to construct fault line selection methods such as amplitude comparison, polarity comparison, group amplitude comparison, phase comparison, or harmonic current direction. The distribution of harmonic voltage in the circuit is not uniform and varies with the amplitude and phase relationship between the power supply and load harmonic sources [7]. The harmonic current generated by a fault not only depends on the presence or absence of a harmonic source in the system, the amplitude of the harmonic source, the phase relationship between each harmonic source, but also on the position of the fault point relative to the harmonic source. In addition, the amplitude of the harmonic component in the fault current is small (generally less than 10% of the power frequency current amplitude) and unstable, resulting in low detection sensitivity.

**1.2 Transient electrical quantity line selection method**  
The transient zero mode current amplitude of low current grounding faults is large, usually reaching

more than ten times the steady-state capacitance current to ground of the system; When intermittent arc grounding occurs, the transient process lasts longer and the transient quantity is more abundant, and the reliability of using transient quantity to select lines is higher. Compared to steady-state line selection, the principle of transient line selection is relatively complex, requiring high data acquisition and processing capabilities of the line selection device.

**The first half wave method.** The first half wave method utilizes the polarity relationship between transient zero mode voltage and zero mode current for fault line selection. During the first transient half wave of a fault, the polarity of the transient zero mode voltage is opposite to that of the zero mode current of the faulty line, and is the same as that of the transient zero mode current of the non faulty line. During the transient process after the first half wave, the polarity relationship between the transient zero mode voltage and the transient zero mode current of the faulty line will change, losing the basis for fault line selection. In actual distribution networks, the frequency of transient signals of grounding faults is relatively high and varies within a certain range, making the time for the first half wave polarity relationship to be established very short (within about 1ms) and uncertain, which cannot guarantee the reliability of line selection.

**Transient zero mode current group comparison method.** The transient zero mode current group comparison method selects fault lines based on the amplitude and polarity characteristics of the transient zero mode current. The transient zero mode current amplitude of the faulty line is the highest, and its polarity is opposite to that of the non faulty line [9]. The transient zero mode current group amplitude comparison method selects the fault line with the highest amplitude by comparing the transient zero mode current amplitudes of all lines in the substation; The transient zero mode current group polarity comparison method compares the transient zero mode current polarity of all lines in a substation. If a certain line has opposite polarity to all other lines, it is judged as a faulty line. If all lines have the same polarity, it is judged as a busbar grounding fault.

### 1.3 Existing problems and solutions

The selection principles for low current grounding are diverse and the quality varies. Some on-site line selection methods do not guarantee the reliability of line selection from the perspective of detection principles. In addition, many products have incomplete or defective software and hardware designs, which cannot fully utilize the effectiveness of detection principles. Due to the low success rate of on-site line selection and unsatisfactory application results, the distribution network operation personnel on duty have lost trust in the low current grounding line selection device and are more accustomed to

using manual routing methods to select faulty lines. There are defects in the installation quality of product engineering. A considerable number of devices on site cannot ensure the effectiveness of the zero sequence current signal actually connected, such as improper selection of the zero sequence current transformer ratio, unreasonable installation position, polarity reversal, no return of the cable shielding layer grounding wire, short circuit or disconnection fault in the secondary circuit, all of which make the signal unable to be accurately transmitted to the line selection device and cannot ensure the effective operation of the device.

There is an issue of inadequate on-site management. The on-site operators neglect the regular maintenance or inspection of the low current grounding fault line selection device, and the problems that occur during the device operation cannot be detected and dealt with in a timely manner.

To improve the accuracy of low current grounding fault line selection, it is first necessary to choose a reliable line selection method with reliable principles and fully verified engineering applications. Then, it is also necessary to solve problems such as design quality, construction, installation, management and maintenance of the device, and to do a lot of design improvement and engineering work.

## **2. ADAPTIVE TRIPPING AND HIGH RESISTANCE GROUNDING**

### **2.1 Adaptive tripping technology**

The distribution network adopts a low current grounding method, which allows for short-term continuous operation in the event of a single-phase grounding fault, which is beneficial for improving power supply reliability. However, during single-phase grounding operation, the voltage of the non faulty phase increases to line voltage. Prolonged operation with a grounding fault point may endanger the insulation performance of the distribution network, especially intermittent arc grounding may generate overvoltage exceeding 3 times the rated voltage on the non faulty phase, or the voltage of the non faulty phase may be superimposed with lightning overvoltage, operating overvoltage, etc., which can easily lead to weak insulation of the system and cause two-phase grounding short circuit, Expand the scope of the accident. For cable lines, the prolonged presence of grounding arcs can exacerbate the damage to the fault point and, in severe cases, cause interphase faults. If it is possible to automatically trip and cut off the faulty line or section after selecting the faulty line when a permanent grounding fault occurs in a low current grounding system, it can not only retain the advantages of instantaneous grounding fault self-healing, but also avoid the hazards caused by long-term operation of the system with grounding fault points.

The operating regulations of the original distribution network in China allow low current grounded

distribution networks to operate with grounding points for 2 hours. In European countries, Austria and Germany allow low current grounded distribution networks to operate with grounding points, while other countries directly disconnect the faulty line after detecting a grounding fault and unable to self extinguish the arc after a period of time. Japan also adopts the method of directly disconnecting faulty lines.

At present, both State Grid Corporation of China and Southern Power Grid Corporation of China have implemented the practice of automatically tripping and removing low current grounding faults after line selection. The main reason is that the detection technology for low current grounding faults is becoming increasingly mature and has the technical means of automatically isolating fault sections. Moreover, the distribution network widely adopts a ring structure, which can control the power outage area as small as possible through load transfer.

The adoption of low current grounding fault adaptive tripping technology can meet the requirements of improving power supply reliability and reducing the harm of grounding overvoltage. The so-called self applicable tripping refers to the decision whether to directly trip the line with ground fault based on the selection results, fault conditions, and load conditions. In cases where the selection results are reliable, intermittent arc grounding faults occur with high overvoltage amplitude, and the load is not particularly important, trip as soon as possible to avoid causing phase to phase short circuit faults; When a stable grounding fault occurs and the overvoltage amplitude is low, there is no need to trip to maintain the continuity of power supply. Adaptive tripping can leverage the advantages of low current grounded distribution networks operating with ground faults, while also avoiding the expansion of accidents caused by overvoltage. It can balance the reliability of power supply and the safety of distribution network operation.

### **2.2 High resistance grounding fault line selection technology**

Due to factors such as low voltage level and incomplete insulation breakdown in distribution networks, the probability of high resistance grounding in low current grounded distribution networks is high, and the grounding resistance value is much greater than the grounding fault resistance of the transmission network. High resistance faults do not have a significant impact on the normal power supply of the distribution network to the load, but a considerable portion of high resistance faults are caused by wire grounding faults, which can easily lead to electric shock accidents caused by human or livestock contact with the wire. Therefore, lines with high resistance grounding faults should be promptly detected and shut down.

When a low current grounded distribution network

experiences high resistance grounding, the power frequency current and harmonic current generated by faults are significantly reduced; The injection and additional current decrease with the increase of transition resistance, while the distributed capacitance of non fault lines will divert more additional current from fault lines; The transient process of the fault is not obvious, and the amplitude of the transient voltage and current signal is small. Therefore, for high resistance grounding faults, it is difficult to solve the problem by simply improving the existing low current grounding line selection methods or increasing the detection sensitivity of the line selection device, and special detection methods and technical measures need to be taken. At present, commercial products based on principles such as zero sequence current, pattern recognition, and harmonic current have been developed internationally, but the actual application effects of these products are not very ideal. IEEE PES has released a special report stating that existing technologies cannot fully solve the detection problem of high resistance grounding (wire grounding) faults. To ensure public safety, further research and development of new high resistance fault protection technologies for distribution networks is needed. Considering the low current, serious nonlinear phenomena, and cost constraints of high resistance grounding faults, it is not necessary to require 100% accuracy in the research and development of high resistance grounding fault detection technology.

### 3. CONCLUSION

This article systematically summarizes the technical advantages, disadvantages, and applicability of the method for selecting low current grounding faults. The reliability of the line selection method using steady-state variables cannot be guaranteed in the case of intermittent arc grounding faults, and zero sequence current method, zero sequence reactive power direction method, etc. cannot be applied to neutral point grounding systems through arc suppression coils; The line selection method using transient variables is not affected by arc suppression coil compensation, and has higher reliability in the

event of intermittent arc grounding faults. To fully utilize the engineering application effect of the line selection technology itself, in addition to the reliable and mature technical principles of the line selection method itself, it is also necessary to improve the design quality, engineering installation, and management maintenance of the line selection device.

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# Research on the Implementation Strategy of "Curriculum Thinking and Politics" in Electric Power Courses

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**Abstract:** "Curriculum thought and politics" is a new mode for colleges to promote ideological and political education and seek reform and development. The knowledge points of electric power major courses are abstractly complicated and involve more content of calculation and formula reasoning, so it is difficult to realize "curriculum thinking and politics". This paper will start from the role of professional teachers in "curriculum thinking and politics" and the goal of realizing "curriculum thinking and politics" in electric power courses, and provide reference for the promotion of "curriculum thinking and politics" in electric power and related engineering majors.

**Keywords:** Curriculum Ideological and Political; Engineering; Professional Courses; Professional Teacher

In 2017, General Secretary Xi Jinping at the National Conference on Ideological and Political Work in Higher Education Institutions, it was emphasized that ideological and political work is related to the fundamental issue of what kind of people universities cultivate, how to cultivate people, and for whom to cultivate people. It is necessary to adhere to the central link of cultivating morality and cultivating people, and to integrate ideological and political work throughout the entire process of education and education, achieving full and all-round education.

## 1. THE IMPLEMENTATION STATUS OF "CURRICULUM IDEOLOGY AND POLITICS" IN ELECTRIC POWER COURSES

In current universities, the phenomenon of ideological and political education being out of sync with professional education is becoming increasingly apparent. Professional teachers have insufficient awareness and unilaterally allocate the tasks of ideological and political education to ideological and political teachers, counselors, and class mentors, limiting the focus of ideological and political education to class meetings, themed educational activities, and other related ideological and political activities[1]. This makes it difficult for ideological and political courses to be integrated into daily general and professional courses. Even the complete lack of ideological and political content has led to an isolated dilemma in ideological and political education. To overcome this dilemma, it is necessary

to start with the three key elements of teachers, textbooks, and teaching, transforming concepts, digging textbooks, and thinking about teaching[2]. All course teaching should exude the flavor of ideological and political courses, subtly carry out ideological and political education, achieve the transformation from "ideological and political courses" to "curriculum ideological and political", establish a teaching system that integrates ideological and political courses, comprehensive quality courses, and professional education courses, and construct a comprehensive ideological and political education pattern for all staff and courses.

## 2. KEY POINTS IN THE "IDEOLOGICAL AND POLITICAL CURRICULUM"

The key to achieving "curriculum ideological and political education" lies in the transformation of professional teachers' educational concepts and the improvement of ideological and political level. On the one hand, professional teachers should strengthen their theoretical confidence, guide students to integrate the values and requirements of the country, society, and citizens, improve personal patriotism, professionalism, integrity, and friendliness, consciously integrate the individual into the larger self, internalize the socialist core values into spiritual pursuits, and externalize them into conscious actions. Only by truly understanding and comprehending the core values of curriculum teaching can professional teachers consciously fulfill the "curriculum ideology" in curriculum teaching. On the other hand, it is necessary to strengthen the cultivation of professional teachers' moral education concepts and abilities. Professional teachers must firmly establish a sense of mission and responsibility not only to teach well but also to cultivate good people, strengthen the education and training of professional teachers' moral education awareness, and make the majority of professional teachers realize that carrying out ideological and political education in the curriculum does not waste teaching time, but rather plays a promoting role. At the same time as the transformation of professional teachers' moral education concepts, in order to truly achieve "curriculum ideological and political education", professional teachers also need to have the ability to value education[3]. Therefore, to strengthen

professional teachers' moral education ability, guide professional teachers to deeply explore and extract the moral education elements and value resources of the curriculum based on professional characteristics and curriculum nature, and integrate socialist core values and professional ethics into the curriculum teaching process, To achieve a "curriculum ideological and political" situation where "moral education is included in the curriculum and everyone teaches and educates".

### **3. REFLECTIONS ON THE PROFESSIONAL COURSE "CURRICULUM IDEOLOGY AND POLITICS"**

Science and engineering courses are different from humanities and social sciences courses. Their content mainly focuses on understanding natural laws as the essence of knowledge, reflecting the laws of natural operation and development, and emphasizing objectivity. The difficulty of implementing "curriculum ideological and political education" in science and engineering majors is much greater. To do a good job in "curriculum ideological and political education" in science and engineering majors, it is necessary to systematically design teaching methods for ideological and moral education[4].

#### **3.1 Adhere to professional positioning and serve national strategies and industry requirements**

When setting up a certain major in higher education, it is necessary to fully consider the professional positioning, target the industry, cultivate the talents needed by the industry, and provide qualified talents for the healthy development of the industry. The 'Course Ideological and Political Education' of professional courses is not a specialized ideological and political education, and science and engineering courses cannot be taught as ideological and political courses. It is not simply about theoretical teaching before ideological and political education, but rather about starting from the national strategy and industry needs, considering how to serve the national strategy and industry needs, serving the socialist core values, adhering to the scientific nature of course knowledge, and exploring its principles, values, ethics, etc, Integrating ideological and political education into the teaching process, integrating professional ethics education with social ethics education, achieving the goal of ideological and political education, allowing students to not only learn professional theoretical knowledge but also improve their ideological and moral qualities. For example, the implementation of the "the Belt and Road" initiative and the national high-speed railway strategy are interspersed in professional courses, involving planning, architecture, bridges, machinery, electronics, communications, artificial intelligence and other disciplines, reflecting the strength of the country, promoting the development of science and technology, facilitating people's travel, improving people's well-being, and stimulating students' patriotic enthusiasm.

#### **3.2 Advocate the spirit of science and promote excellent traditional culture**

China has a long history and rich excellent traditional culture. The level of scientific and technological development in ancient China was leading, with many outstanding historical figures in science and technology emerging. The professional courses of science and engineering can fully explore the historical stories and characters related to the courses as the theme of ideological and political education, guide students to advocate science while interspersed with excellent historical allusions and outstanding characters, such as Zhang Heng, who invented the armillary sphere and seismograph, Bi Sheng, who invented movable type printing, Lu Ban, a civil engineer, Li Chun, the builder of Zhaozhou Bridge, Li Bing and his son, the builders of Dujiangyan Irrigation Project, and use them to pursue truth Explore the stories of science, stimulate students' patriotic enthusiasm and the spirit of advocating science, and achieve the goal of "curriculum ideology and politics". Vigorously promote the national spirit with patriotism as the core and the spirit of the times with reform and innovation as the core. Educate and guide students to deeply understand the essence and value of the times of the Chinese excellent traditional culture, which stresses benevolence, people first, honesty, justice, harmony and harmony. Educate and guide students to inherit the Chinese culture, which is full of Chinese heart, Chinese feelings and Chinese flavor

#### **3.3 Emphasize practical education and cultivate a sense of responsibility**

The practical nature of science and engineering courses is strong, and professional teachers pay more attention to cultivating students' hands-on abilities in teaching, requiring students to have a rigorous work style. From the perspective of "curriculum ideology and politics", professional teachers should be adept at cultivating practical abilities. While applying theoretical knowledge, they should elevate their knowledge to the level of the country, society, and family, explain the work requirements of different levels and division of labor in the industry, enable students to understand the social development status, keep up with the pace of industry technology development, and enhance their understanding of national and social development, Strengthen the sense of responsibility and mission towards society and the family, conduct ideological and political education from multiple perspectives and dimensions, and improve one's self-awareness in practical abilities. Practical courses. Professional experimental practice courses should focus on the combination of learning and thinking, the unity of knowledge and action, and enhance students' innovative spirit of exploration and practical ability to solve problems. The innovation and entrepreneurship education curriculum should focus on enabling students to "dare to venture and be

creative", and enhance their innovative spirit, creative awareness, and entrepreneurial ability through personal participation. Social practice courses should focus on educating and guiding students to promote the spirit of labor, combining "reading thousands of books" with "traveling thousands of miles", rooted in China, understanding the national conditions and customs, increasing wisdom and talent in practice, and tempering willpower and character through hard work.

#### 3.4 Deepen education on professional ideals and ethics

Education guides students to deeply understand and consciously practice the professional spirit and norms of various industries, enhances their sense of professional responsibility, and cultivates professional ethics and behavior habits that are law-abiding, dedicated, selfless, honest, fair, and innovative. Professional education courses. Based on the characteristics and advantages of different disciplines and majors, we need to conduct in-depth research on the educational goals of different majors, deeply explore and extract the ideological values and spiritual connotations contained in the professional knowledge system, scientifically and reasonably expand the breadth, depth, and temperature of professional courses. From the perspectives of the majors, industries, countries, international, cultural, and historical aspects involved in the courses, we need to increase the knowledge and humanity of the courses, enhance their leading, contemporary, and openness.

#### 4. CONCLUSION

We should combine the education of Marxist standpoint, viewpoint, and method with the

cultivation of scientific spirit in curriculum teaching, to improve students' ability to correctly understand, analyze, and solve problems. Science courses should focus on the training of scientific thinking methods and the education of scientific ethics, cultivating students' sense of responsibility and mission to explore the unknown, pursue truth, and bravely climb scientific heights. Engineering courses should focus on strengthening students' education in engineering ethics, cultivating their spirit of striving for excellence as a great craftsman, and inspiring their patriotism and mission to serve the country through technology.

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# Enlightenment from the Big Data Thinking to Information Services of Libraries

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**Abstract:** In recent years, with the continuous progress of social economy and modern science and technology, the practice of electronic network information technology and big data service concept has driven the rapid development of various fields of social information services. As an important cultural institution serving the society, the library has also begun to actively promote and apply big data service concepts and thinking perspectives, in order to do a good job in related basic work. Based on the perspective of big data and big data thinking, this paper analyzes the application of big data and related preparations, which lays a foundation for improving the information innovation of libraries in the later stage.

**Keywords:** Big Data Thinking; Library Informatization; Service work

With the increasing attention to big data, although the big data technology is not mature enough and the application cannot be extensive, big data thinking plays a very important role, and the tool should be applied based on this in the era of big data. This paper takes the "Library Cube" project as an example to discuss its application in library information services, and studies the integration and improvement of library information services by applying big data thinking. At present, with the advent of the Internet information age, data, technology and thinking present a three-pronged situation, the application of big data has been widely concerned by all walks of life, but because China's big data technology is in the early stage of development, how to correctly apply big data thinking to library service work has become a new challenge and new idea for library managers. The advent of the era of big data has created a good data development environment for libraries, and at the same time can ensure that libraries discover readers' needs in a timely manner and optimize internal business processes.

## 1. BIG DATA AND ITS THINKING

### 1.1 Big data overview

Big data is also known as massive data, and its classification criteria are mainly based on whether the storage capacity of data reaches petabytes or exabytes. According to the statistical report of the International Data Corporation, the growth rate of the total amount of global information can double every two years, and the definition of "big data" still lacks a

unified authoritative standard[1]. However, data "big" is different from "big data", and big data is not actually a quantitative description of the scale of data, but the technology and thinking to quickly extract information in diversified large-volume data.

### 1.2 An overview of big data thinking

Big data thinking essentially refers to the influence of Internet thinking and Internet technology, there is a kind of complexity produced by big data, practicable, with guidance, processing, innovation, work thinking mode, in its philosophical foundation or internal logic, with unbiased, regular, open and related four characteristics. Big data is not only a technology, but also a kind of thinking, with the help of big data thinking to innovate the service model of the library, it is conducive to expanding the scope of information services, improving service quality, so as to provide other social organizations with big data sources and create information value.

At present, in the development process of the big data era, libraries mainly face problems such as "information creation, organization, storage, mining, analysis, and service", in other words, the era of big data brings great challenges while bringing opportunities for library development. Big data technology itself is a tool to achieve library service goals, and its managers should on the one hand strengthen the intelligent decision-making ability of knowledge services, and increase the proportion of analysis data of library information in big data analysis. On the other hand, establish a big data integrated solution integrating software and hardware, data and knowledge acquisition, storage, organization, analysis and decision-making big data solution, so as to deeply analyze its technology.

### 1.3 Big data thinking characteristics

#### 1.3.1 Regularity

The logic behind big data technology - seemingly chaotic massive data must hide regularity, behind each data is an objective record of real individual behavior, psychology, thoughts, etc., and human behavior patterns, psychological mechanisms are extremely stable relative to the entire human group, that is, they will show regularity. But these rules are not known until data analysis and mining, such as diapers and beer cases.

#### 1.3.2 Unbiased

An important disciplinary foundation of big data technology is statistics, so big data thinking reflects

the thinking characteristics of statistics or a breakthrough in it. An important achievement of statistics is to solve the problem of "representativeness", in the past, limited by practical factors, the vast majority of surveys can only be in the form of sampling, but sampling is always biased and cannot represent the whole, so statistics is required to be committed to ensuring and striving to improve representativeness. With the emergence and application of big data technology, people have found that direct research is generally more feasible. Tu Zipei[2], an expert in big data research, believes that "the data revolution is actually a revolution in statistics"

### 1.3.3 Relevance

Big data is formed by the accumulation of data, databases, datasets and data groups, and the more data it has, the greater its value. Therefore, when conducting data mining, we should not only pay attention to the association between data sets and data sets within data groups, but also pay attention to the association between data groups and data groups to mine more hidden value.

### 1.3.4 Openness

Openness means that the possible conclusions are not presupposed or expected, but are studied in accordance with proven and reliable scientific methods and processes. Big data research is without presuppositions, and you don't know what you want until you get a conclusion, that is, "unknown unknown". A major limitation of most traditional business intelligence tools is to focus on the "known unknown," where you know what the problem is, then go to the answer, and let the analyst determine in advance what data to collect. Of course, to achieve the "unknown unknown", the prerequisite is to have big data and be equipped with the corresponding analysis technology or system.

Big data is not only technology, but also thinking. With the help of big data thinking to innovate the library information service model, the continuous expansion of the scope of information services and the continuous improvement of the quality of information services is the key, but also to provide big data sources to other social organizations and create certain information value, and big data technology is essentially an important tool to achieve the goal.

### 1.4 Libraries and big data

At present, relevant personnel in the field of library application of big data technology to carry out related research, the first thing they face is "does the library have big data" and "what is the big data of the library"[3]. Compared with other industrial models, although there is a certain relationship between data, knowledge and information in the service work of libraries under big data, there are also obvious differences. In the actual application process, the big data before the call and analysis is usually unable to

be directly used because of its disorderly nature, while information resources such as thesis databases can be directly used in the library and have the possibility of becoming big data. In the process of library service application, big data thinking has regularity and correlation, but there are also obvious differences in data scale, but it does not affect the library's application of big data thinking.

In the field of library and information research, there is not only a certain relationship between data, knowledge and information, but also a clear difference. Big data is usually in a disordered state before being called for analysis, and it is difficult to use it directly, while information resources such as paper databases can be directly read and studied in the library, but the lending records, user information behavior data, etc. in the library belong to big data or have the possibility of becoming big data. Big data thinking shows that there is a certain correlation between some regular data groups hidden behind massive data, and the number of book lending records of a domestic library is still difficult to reach the petabyte level, and there is a certain gap between the data scale and big data, but it does not affect the library's application of big data thinking. The library should have more data information than the current one, but because there is no learning and internalization of big data thinking, the collection and storage of big data such as user information behavior generated every day is not timely enough, and it is more difficult to mine and research data.

## 2. APPLICATION OF BIG DATA THINKING

### 2.1 Library cube

In 2010, the University of Wollongong (UWL) Library[1] completed the "Library Cube", which links students with relevant records of the library to the databases of other systems on campus, not only to evaluate the impact and value of the library in teaching activities, but also to use the collection and feedback of information to expand the influence of library information resources and improve their value, so as to provide important data support for the school's teaching and development.

**Value cube:** Developed and in use, the cube revolves around subject teaching activities to evaluate the impact of the use of library information resources on student achievement. UWL can use this system to see the basic information characteristics of students with different frequency of use. The cube's data is updated every semester and needs to be imported after the student grades are summarized at the end of the semester.

**Marketing Cube:** The marketing campaign objectively requires the cube to update the data once a week, and obviously the value cube cannot meet the requirements, so the marketing cube does not include the data of student achievement, only includes the basic information data of the student and the data of the type of electronic resources used by the student

(such as the name of the e-book, e-reading material or the database accessed, etc.). The cube is currently under development.

Process improvement cube: The cube has not yet been developed, but its data will be aggregated by subject with the aim of extending the library's impact beyond the field of teaching.

Through the analysis of project data, it can be seen that on the one hand, the academic performance of college students has an important correlation with their use of library information resources, that is, the longer the use of electronic resources, the higher the proportion of excellent academic performance, which reflects the importance of university libraries and the role of value creation. On the other hand, the "Library Cube" has an important guiding role in the creation of teaching activities of the library, making it more efficient and targeted.

## 2.2 The library prepares "big data" related work

### 2.2.1 Collection and storage of relevant data

At present, the library should mainly carry out the collection and storage of user information behavior data, not only accumulate it to big data, but also prepare it for future applications; Moreover, with the help of current data analysis and research methods, the in-depth understanding of changes in user needs is strengthened for user information behavior data, so as to facilitate the segmentation of user groups and achieve effective guidance for the integration of library information resources and services[4]. Public libraries that reach a certain size serve users a day similar to the number of customers of large enterprises per day, and have a lot of user behavior data, and libraries should pay more attention to this and collect it. For example, within the IP range of the campus network, university library users can only directly log in to the library system and apply their electronic resources, but under the current circumstances, many libraries have not raised their awareness and purposefully recorded and stored user information behavior data. These data of users have semi-structured and unstructured characteristics, although they do not have a large value density, but if comprehensively collected, it is important to carry out analysis and research on users' relevant preferences, and can also assist libraries in providing the effectiveness and pertinence of information services.

### 2.2.2 Learning for big data thinking

Big data and big data technology are not the most important in the era of big data, but big data thinking is indeed the most important[4]. The source of innovation is thinking, and the learning and internalization of big data thinking is very important for libraries to adapt to the development of the big data era. In society, libraries are the distribution nodes of information resources, and if users find it difficult

to get the required services from the library, they will turn to other departments, and the loss of users will shake the existence base of public welfare institutions. Therefore, libraries should actively organize the study of big data thinking and deeply grasp the development and application of big data in other fields, whether it is business or social fields. Before learning and understanding in-depth, library managers are prone to the problem of one-sided understanding of big data, thinking that big data technology is very profound, resulting in a certain distance.

## 3. LEARN BIG DATA THINKING

As mentioned earlier, the most important thing in the era of big data is not big data, nor big data technology, but big data thinking. Thinking is the source of innovation. Learning and internalizing big data thinking is critical for libraries to embrace the era of big data. The library is the distribution node of information resources in the whole society, and if users cannot get satisfactory services from the library, they will turn to other organizations or institutions, and the loss of users will shake the existence of public welfare institutions. Therefore, libraries should organize the study of big data thinking and understand the development and application of big data in other fields, whether it is the business field or the social field. Before learning and understanding, library management or librarians are likely to misunderstand big data because of their incomprehensible understanding of big data, thinking that big data technology is unfathomable and easy to produce a sense of distance. Big data is closely related to our daily behavior, and the economic evaluation and information service work of libraries can also be applied to big data thinking. Libraries with the conditions can try to practice similar to the "Library Cube" project, fully understand the user's information behavior and its changing needs, and at the same time objectively quantify their own economic value, so as to continuously improve information services and enhance the importance of libraries.

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