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Discussion on the Application and Common Faults of Hydraulic Stretcher

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Abstract: For hydraulic stretchers widely used in ships, it is necessary to master the correct usage method to avoid unexpected damage during use. This article introduces the structural characteristics, application and maintenance of commonly used hydraulic stretching, as well as the analysis of common faults, for everyone to learn and reference.

Keywords: Hydraulic Stretcher; Application; Maintenance; Fault

1. STRUCTURAL CHARACTERISTICS OF HYDRAULIC STRETCHER

1.1 Ordinary hydraulic stretcher

Hydraulic stretcher is a relatively advanced bolt assembly method, especially suitable for narrow spaces and heavy-duty vibration machinery to be sturdy. Its main components include: sliding piston D, oil cylinder E, support ring G, sealing ring F, vent screw C, and quick connector A. the working principle of hydraulic stretcher is that the hydraulic stretcher is installed on the upper part of the bolt, and the internal thread of the sliding piston is screwed into the thread of the upper part of the bolt. the high-pressure oil from the pneumatic hydraulic oil pump passes through a quick joint to the sealing space formed by the oil cylinder E and the piston D. the hydraulic oil acts on the movable piston, causing the sliding piston to apply external force to the bolt J for axial tension. the bolt being applied with force is elongated in its elastic deformation zone, After the bolt is elongated, tighten the nut I so that the bolt will be in the elongated position.

The sliding piston can slide up and down in the oil cylinder, and the upper and lower sealing rings can prevent internal hydraulic oil leakage. Each hydraulic stretcher has a maximum lift. If the maximum lift is exceeded during operation, high-pressure oil will leak through the sealing ring below, causing a decrease in hydraulic oil

pressure in the sealing space. There are two upper and lower sealing rings, one with a rectangular cross-section and the other with a circular cross-section. the rectangular sealing ring is installed at the top and bottom.

1.2 Automatic reset hydraulic stretcher

The working principle of the automatic reset hydraulic stretcher is basically the same as that of the ordinary hydraulic stretcher, but it is slightly more complex, mainly adding the following components: cover plate B, spring E, guide pin F, and release valve G. the upper surface of the sliding piston has five blind holes for installing springs, and the cover plate compresses the five springs to make the sliding piston in close contact with the oil cylinder. When high-pressure oil enters the sealing space formed by the sliding piston and oil cylinder, the sliding piston moves upwards and the five springs are compressed; After the high-pressure oil is discharged, the sliding piston automatically resets to its original state under the action of five springs, and the hydraulic oil in the sealed space returns to the hydraulic oil pump. If the distance the sliding piston moves upwards exceeds the maximum lifting height of the hydraulic stretcher (see Figure 3), the release valve on the sliding or plug will touch the cover plate, causing the release valve to act. the high-pressure oil in the sealing space will be immediately released, and the hydraulic oil downstream of the cover plate can be seen flowing out with the naked eye. By observing the elongation of the guide pin, it can be determined whether the hydraulic stretcher has exceeded the maximum lifting height.

2. USE AND MAINTENANCE OF HYDRAULIC STRETCHER

2.1 Disassembly of nuts

During the use of hydraulic stretchers, gloves and protective glasses must be worn;

The working oil must be clean hydraulic oil, and the main engine system lubricating oil or cylinder oil cannot be used; Before disassembling the nut, check and clean the internal thread of the sliding piston of the hydraulic tensioner; Install the support ring, paying attention to the up and down direction, with the flat surface with open grooves at the bottom; Install a hydraulic stretcher, connect the distribution block and hydraulic oil pipe to the hydraulic pump; Loosen the bleed screw on the sliding piston, supply hydraulic oil until no bubbles come out, and then tighten the bleed screw; Tighten the hydraulic stretcher (not required for automatic reset hydraulic stretchers) until the sliding piston is fully seated at the bottom of the oil cylinder, and then loosen the hydraulic stretcher by 3/4 turns (note: usually 3/4 turns, according to the instructions). You can refer to Table 1 to check the gap between the hydraulic stretcher and the support ring to ensure that the hydraulic stretcher can be disassembled smoothly after the nut is loose; Pump in hydraulic oil and gradually increase the pressure of the hydraulic oil to the specified value. If the nut still cannot loosen, increase it by an additional 10% of the specified value. Use a pry bar to loosen the nut (note: the upper surface of the nut should not touch the lower surface of the stretcher). After releasing the oil pressure, disassemble the hydraulic oil pipe and hydraulic tensioner (see Table 1).

2.2 Installation of nuts

Gloves and protective glasses must be worn during the use of hydraulic stretchers; The working oil must be clean hydraulic oil, and the main engine system lubricating oil or cylinder oil cannot be used; Before disassembling the nut, check and clean the internal threads of the hydraulic tensioner sliding piston, the external threads on the bolt, and all contact surfaces, and lubricate the threads with oil; Install the nut and manually tighten it to ensure that the lower surface of the nut fully fits; Install the support ring with an open groove underneath, and the opening on the support ring should be oriented to facilitate levering and tightening the nut; Press the sliding piston upwards or use a special tool to fully fit the sliding piston with the oil cylinder (automatic reset hydraulic stretcher does not require it); Screw the hydraulic tensioner into the thread of the bolt to compress the support ring; Connect hydraulic oil pipes, distribution blocks,

and hydraulic oil pumps; Loosen the bleed screw on the sliding piston, pump in hydraulic oil until no bubbles come out, and tighten the bleed screw; Gradually increase the oil pressure to the specified value, tighten the nuts. If new bolts or nuts are used, tighten the nuts again, loosen them, and tighten them again, usually 2-3 times in sequence; Use a feeler gauge to check whether the nut is fully fitted through the opening groove at the bottom of the support ring; After releasing the oil pressure, disassemble the hydraulic oil pipe and hydraulic tensioner.

3. COMMON FAULTS OF HYDRAULIC STRETCHER

3.1 Hydraulic stretcher oil leakage

Main cause: wear or aging of the upper and lower sealing rings; the vent screw is not tightened or damaged; During the working process, the lift of the hydraulic stretcher exceeds the maximum lifting height. Measures taken: Replace the sealing ring; Tighten or replace the bleed screw; Disassemble the hydraulic tensioner after pressure relief, and replace it if the sealing ring is damaged. Attention: When using hydraulic stretchers, take personal protection measures. Pay close attention to all hydraulic stretchers when pumping. If oil leakage is found, stop pumping oil in a timely manner and drain the oil pressure.

3.2 Hydraulic stretcher cannot be removed

Main reason: When disassembling the nut, the hydraulic tensioner was not loosened or was not loosened enough after installation; Too much loosening of the nut touches the bottom plane of the sliding piston; Release the quick connector before pressure relief. Measures taken: When disassembling the nut, the maximum lifting height of the hydraulic tensioner varies, and the degree of loosening also varies. It is necessary to strictly follow the requirements of the manual; When loosening the nut, the upper surface of the nut must not touch the bottom of the sliding piston; If encountering the above two phenomena, simply retighten the nut and disassemble it correctly again; After pressure relief, disassemble the quick connector. If this phenomenon occurs, slightly loosen the vent screw to release the oil pressure.

Attention: After removing the nut and installing the hydraulic stretcher, observe the hydraulic stretcher during the pumping process to prevent it from rotating when the high-pressure oil pipe is filled.

3.3 Sliding piston jamming

Main reason: surface roughness on the contact between sliding piston and oil cylinder; There are hard particles and other garbage in the sealed chamber. Measures taken: Disassemble the hydraulic tensioner, polish the contact surface, and replace damaged sealing rings; Thoroughly clean the interior of the sealed chamber. Attention: Clean the hydraulic stretcher after use, cover the quick connector with a cover to prevent garbage from entering, and store it in a special tool cabinet.

3.4 Quick connector oil leakag

Main reason: use of counterfeit hydraulic oil pipes; the quick connector is not installed in place; the internal components of the quick connector are damaged. Measures taken: Order original hydraulic oil pipes; Install the quick connect fitting correctly; Replace the damaged quick connect fitting. Attention: During the pumping process, workers should stay away from the quick coupling to prevent it from loosening and injuring people.

3.5 Stuck nut

Main reason: the external thread on the bolt is scratched; When using a hydraulic stretcher to

remove the nut, the nut is loosened too much or too little. Take measures: repair the damaged threads; Normally, the nut should not be loosened more than one turn. Attention: After installing the nut, cover it with the protective cover.

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A Study on the Comprehensive Education Model of "One Stop" Student Community in Vocational Colleges

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Abstract: This article explores the research on the "one-stop" student community comprehensive education model in vocational colleges. This model organically integrates aspects such as student life, learning, practice, and service, forming a comprehensive and three-dimensional educational environment. By optimizing resource allocation and constructing models such as community+learning, party building, and volunteering, we aim to enhance the comprehensive quality of students and provide new ideas and methods for cultivating high-quality technical and skilled talents in vocational colleges.

Keywords: One-stop student community; Education model; Vocational colleges

1. THE CONNOTATION AND CORE OF THE "ONE-STOP" STUDENT COMMUNITY EDUCATION MODEL IN VOCATIONAL COLLEGES

1.1 Taking Party building as the core and promoting diversified education

Taking party building as the core is the core of the "one-stop" student community education model, which can achieve diversified education. In vocational colleges, party building work is of utmost importance and an important guarantee for cultivating qualified talents. Therefore, the "one-stop" student community needs to integrate party building work throughout the entire education process, and guide students to establish correct worldviews, outlooks on life, and values through various forms of party building activities. At the same time, the "one-stop" student community also needs to pay attention to diversified education, that is, to cultivate students' comprehensive qualities and professional abilities through various ways and

means, such as organizing various forms of club activities, social practice activities, innovation and entrepreneurship activities, etc., so that students can exercise their abilities and improve their comprehensive qualities through practice [1].

1.2 Based on the "three comprehensive" system, serving growth

The so-called "three comprehensive" system refers to a comprehensive service system that includes all staff, the entire process, and all aspects. In this system, vocational colleges need to pay attention to the following aspects:

1.2.1 All staff participation: Vocational colleges need to mobilize all faculty and staff to participate in the "one-stop" student community education model, forming a good atmosphere for all staff education.

1.2.2 Full attention: Vocational colleges need to always pay attention to the growth and development of students from enrollment to graduation, and provide comprehensive services and support.

1.2.3 Comprehensive training: Vocational colleges need to provide students with comprehensive training from multiple aspects such as knowledge, abilities, and qualities, in order to improve their comprehensive and professional abilities.

1.3 Taking "moral education" as the task to promote self reflection

In vocational colleges, cultivating morality and nurturing talents is the fundamental task. Only by establishing correct moral concepts can we better serve society. Therefore, a "one-stop" student community needs to focus on moral education for students, and guide them to establish correct moral concepts and values through various forms of moral education

activities. Next, emphasis should be placed on the cultivation of students' self reflection ability. Self reflection refers to the reflection and examination of one's own behavior, and is also an important way to improve personal qualities and abilities. Therefore, the "one-stop" student community must encourage students to engage in self reflection, conduct correct reflection and examination of their own behavior, so as to better understand themselves, improve themselves, and promote their own development.

2. THE CONSTRUCTION PATH OF A "ONE-STOP" STUDENT COMMUNITY COMPREHENSIVE EDUCATION MODEL IN VOCATIONAL COLLEGES

2.1 Constructing a "Community+Learning" Education Model

The "community+learning" education model is a combination of student community and learning. In vocational colleges, student communities are important places for students to live, learn, and communicate, as well as important platforms for their growth and development. Therefore, it is very important to build a "community+school" education model, and schools should increase their attention and focus on the construction of this education model. In this regard, vocational colleges should establish a comprehensive learning support system, which includes support in learning guidance, course guidance, academic research, and other aspects, which can help students better master knowledge and skills, improve learning effectiveness and comprehensive quality. Not only that, but also a variety of community cultural activities should be carried out, because student communities are not only important places for student life, but also important platforms for cultural exchange. Therefore, it is necessary to carry out a variety of community cultural activities, such as literary and artistic competitions, science and technology competitions, social practice, etc., in order to enhance students' cultural literacy and comprehensive quality, and promote their comprehensive development [2]. At the same time, it is even more important to establish a good academic and school atmosphere, which is an important guarantee for the development of vocational colleges. This includes rigorous academic attitude, positive learning atmosphere, good behavioral habits, and other aspects, which can create a good learning environment and atmosphere, which is of great help to students

and can promote their healthy growth and development.

2.2 Constructing a "Community+Party Building" Education Model

The "community+party building" education model is a combination of student communities and party building work. In vocational colleges, party building work is an important component of school work and also an important content of student ideological and political education. Therefore, building a "community+party building" education model has become an important task. Firstly, it is necessary to strengthen student party building work, establish a sound student party organization, carry out diverse party member activities, strengthen party member education and management, etc., so that students can understand more content in the activities, improve their ideological and political qualities and organizational discipline, and achieve comprehensive development. Secondly, integrate party building work into student communities. Student communities are important places for student life and platforms for ideological and political education. Therefore, vocational colleges must integrate party building work into student communities. By establishing party member service stations, conducting party member volunteer services, and organizing party member learning and exchange, this work can be effectively implemented, which plays a promoting role in enhancing the effectiveness of ideological and political education for students and promoting their healthy growth and development.

2.3 Constructing a "Community+Volunteer" Education Model

The "Community+Volunteer" education model is a combination of student communities and volunteer services. In vocational colleges, volunteer service is an important way for students to participate in social practice and serve society, as well as an important way to cultivate their sense of social responsibility and dedication. Based on this, vocational colleges can establish a sound volunteer service system, including formulating volunteer service regulations, establishing volunteer service organizations, conducting volunteer service training, etc., to regulate students' volunteer service behavior, make them aware of the help of volunteer service activities for their own development, actively participate in volunteer service activities, and improve the quality and

effectiveness of volunteer service. In addition, conducting diverse volunteer service activities, including providing life services for community residents, caring services for the elderly, and contributing to environmental protection, can inspire students more deeply on the basis of the volunteer service system, enabling them to learn to contribute love and better serve society, thereby enhancing their sense of social responsibility and dedication, and preparing for future social life [3].

3. CONCLUSION

Currently, students in vocational colleges are no longer satisfied with the single accommodation function of the school, feeling that this accommodation function is too boring and unable to pass their leisure time. So, higher requirements have been put forward for the accommodation function of vocational colleges, and schools should also make changes, keep up with the development pace of the new era, build a "one-stop" comprehensive education model for student communities, develop towards interactive spaces with diverse needs such as learning, entertainment, life, and communication, build new types of student apartments, provide students with high-quality accommodation

conditions, and better meet their living needs. Serve the learning and life of students. On this basis, vocational colleges should also explore effective forms of community life organization, management, and service, connect students' ideological education paths, dialogue and communication paths, and learning and life paths, efficiently develop students, and improve their ideological and moral qualities.

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Research on the Management of Vocational College Students Based on the Concept of "Three Comprehensive Education"

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Abstract: With the continuous development of the times and the increasing level of the national economy, China's education development has also ushered in new reforms in education. At present, various sectors of society have put forward higher requirements for student management in vocational colleges, and the concept of "comprehensive education" is just in line with the needs of the times, which can better promote the improvement of cultural level and comprehensive quality of vocational college students, and promote their wholehearted and healthy development.

Keywords: Concept of Comprehensive Education; Vocational Education; Student Management; Research

0. INTRODUCTION

The concept of "Three Comprehensive Education" is a combination of cultivating students' intellectual education, moral education, and physical education. This concept emphasizes individual and comprehensive development, with a focus on cultivating students' comprehensive qualities and learning abilities. Based on this, this article takes the management of vocational college students based on the concept of "comprehensive education" as the theme, conducts discussions and research, analyzes the connotation and importance of "comprehensive education", and explores effective measures to optimize student management based on the concept of "comprehensive education".

1. THE SCIENTIFIC CONNOTATION OF THE CONCEPT OF "THREE COMPREHENSIVE EDUCATION"

1.1 The Connotation of Intellectual Education under the Concept of "Three Comprehensive Education"

Intellectual education refers to cultivating students' knowledge and intellectual abilities, enabling them to possess solid subject knowledge and innovative thinking abilities. Under the concept of "comprehensive education", vocational colleges need to focus on cultivating students' learning interests and abilities, providing them with diverse learning resources and teaching methods, stimulating their learning potential, and cultivating their innovative spirit and practical ability in managing students.

1.2 The Moral Education Connotation under the Concept of "Three Comprehensive Education"

Moral education refers to cultivating students' moral qualities and values, so that they have the correct outlook on life, values, and behavioral norms. Under the concept of "comprehensive education", vocational colleges need to focus on cultivating students' moral awareness and social responsibility, guiding them to establish correct life goals and values, cultivating good moral character and behavioral habits, and improving their social adaptability and interpersonal communication skills when managing students.

1.3 The concept of "three comprehensive education"

Sports refer to cultivating students' physical fitness and athletic abilities, enabling them to have a healthy physique and a positive attitude towards life. Under the concept of "comprehensive education", vocational colleges need to focus on cultivating students' sports interests and skills, providing diverse sports activities and exercise opportunities, cultivating their teamwork spirit and competitive awareness, and promoting their physical and mental health development when managing students.

2. THE IMPORTANCE OF THE "THREE COMPREHENSIVE EDUCATION"

CONCEPT IN THE MANAGEMENT OF VOCATIONAL COLLEGE STUDENTS

2.1 The concept of "comprehensive education" emphasizes comprehensive development

Vocational college student management is not only about focusing on students' academic performance, but also about their comprehensive development. However, at present, many vocational colleges overly value students' academic performance and overlook their growth in other fields. In this regard, vocational colleges should strengthen the cultivation of students' comprehensive qualities, including knowledge, abilities, morality, innovative spirit, and other aspects of comprehensive development, so that students have the ability and quality to adapt to social development. Only well-rounded students can better adapt to the needs of society and make greater contributions to it [1].

2.2 The concept of "three comprehensive education" emphasizes the education of all employees

Vocational college student management is not only about managing students, but also emphasizes the cultivation and management of all faculty and staff. Under the concept of "comprehensive education", vocational colleges can strengthen the education system, improve the education and teaching level and management ability of faculty and staff, provide better education and teaching environment and services for students, and promote their comprehensive development. Only by educating everyone can a good educational and teaching atmosphere be formed, and students' learning enthusiasm and innovation ability be improved.

2.3 The concept of "three comprehensive education" emphasizes the whole process of educating people

Whole process education is a long-term educational process, and vocational colleges need to strengthen the long-term nature of education, pay attention to the long-term development of students, provide correct guidance during difficult periods, and promote healthy growth of students. Therefore, student management in vocational colleges should not only be carried out at the time of student enrollment, but also run through the entire learning process of students. In this regard, vocational colleges can establish scientific and reasonable student management systems and

norms, provide full process management and guidance to students, help them solve problems in their learning and life, and improve their learning effectiveness and quality of life. Only by educating students throughout the entire process can we better cultivate their self-learning and lifelong learning abilities.

2.4 The concept of "comprehensive education" emphasizes all-round education

Whole process education is a multi-dimensional teaching management approach that requires exploring the strengths of students from multiple perspectives and providing them with multifaceted, objective, and authentic evaluations. the management of vocational college students should not only be carried out within the school, but also pay attention to the integration of the school and society. By collaborating with various sectors of society, we provide students with practical and internship opportunities to cultivate their practical and innovative abilities. Only through comprehensive education can we better cultivate students' social adaptability and innovation and entrepreneurship abilities [2].

3. SPECIFIC MEASURES FOR OPTIMIZING THE MANAGEMENT OF VOCATIONAL COLLEGE STUDENTS BASED ON THE CONCEPT OF "THREE COMPREHENSIVE EDUCATION"

3.1 Improve student management system

Under the concept of "comprehensive education", vocational colleges should establish a sound management system for vocational college students, clarify the rights and obligations of students, regulate student behavior, and improve the scientific and normative nature of student management. At the same time, vocational colleges should strengthen the education of students' ideological qualities and promote the coordinated development of moral education, intellectual education, and physical education. In this regard, vocational colleges can carry out various forms of thematic education activities to guide students to establish correct life views, values, and worldviews, cultivate students' sense of social responsibility and innovative spirit. For example, vocational colleges can carry out "patriotic themed activities", "community service activities", and "museum visits" to achieve the comprehensive development of moral education, intellectual education, and sports.

3.2 Provide personalized tutoring services for students

Due to the fact that students in vocational colleges come from different provinces and families, there are also significant differences in education between them. In this regard, teachers in vocational colleges should respect the individual differences of students and strengthen personalized teaching and counseling services. In this regard, vocational colleges can establish a student counselor system under the concept of "comprehensive education", provide personalized academic guidance and psychological counseling services for students, help them solve problems in their learning and life, and improve their learning effectiveness and quality of life. This reflects the basic teaching philosophy of "three comprehensive education" and all-round education, further improving the quality and level of student management.

3.3 Strengthen school enterprise cooperation and promote practical teaching activities

Under the concept of "comprehensive education", vocational colleges should establish close cooperation with enterprises, carry out school enterprise cooperation projects, provide internship and employment opportunities, and help students better integrate into society and the job market. At the same time, teachers in vocational colleges can organize students to participate in various practical teaching activities, including internships, practical training, social practice, etc., to improve students' practical operation ability and problem-solving ability. In this way, students can have a good connection when going out of society in the future.

3.4 Strengthen student campus management and self-management

Under the concept of "comprehensive education", vocational colleges should strengthen campus class management, cultivate a good academic and class atmosphere, create a positive and upward learning atmosphere, and

stimulate students' learning interest and motivation. To strengthen the management level of student management. In this regard, vocational colleges can establish a platform for student management and integrate internet information technology into student management work. Through information platforms, students and teachers can communicate and express their ideas in real-time online. At the same time, vocational colleges can also use student management platforms to carry out student autonomous organizations and club activities, cultivate students' self-management abilities and teamwork spirit, and improve their organizational and leadership abilities.

4. CONCLUSION

In summary, the management of vocational college students under the concept of "comprehensive education" is very important. In this regard, vocational colleges should attach great importance to the necessity of student management under the concept of "comprehensive education", and improve the current student management system, provide personalized tutoring services for students, strengthen school enterprise cooperation, and strengthen campus management and student self-management. Only in this way can we create a positive and upward campus atmosphere for students, and promote their physical and mental health growth.

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Research on the Path of Ideological and Political Education in Universities with Red Culture Entering Campus

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Abstract: China has abundant red cultural resources, and integrating them into ideological and political education for college students plays an important role in strengthening campus cultural construction and improving college students' ideological and political literacy. Based on relevant research, this article proposes a series of optimization measures to integrate red culture into the ideological and political education of college students, providing reference for subsequent research.

Keyword: Red Culture; Campus; Ideological and Political Education; Path

0.INTRODUCTION

Red cultural resources have important value in the ideological and political education of college students, providing them with high-quality resources and excellent cultural foundation, and providing correct value orientation. At present, there is relatively little research on the use of red cultural resources on campuses, especially in universities. Some scholars believe that the role of red cultural resources in campus cultural construction is reflected in enriching the educational space and implementation methods of cultural construction [1]. It is of great significance to deeply analyze the significance of red culture entering the campus and explore the effective path of red culture entering the campus, in order to implement the concept of "red culture education" and achieve the fundamental goal of "moral education" for college students' ideological and political education.

1. THE IMPORTANT SIGNIFICANCE OF RED CULTURE ENTERING CAMPUS

1.1 Providing high-quality resources for ideological and political education of college students

The profound ideological connotation and advanced cultural value of red cultural resources reflect the revolutionary spirit, ideological style and fine quality of the Communists and the people's army, and demonstrate the progressiveness of Chinese revolutionary theory. The characteristics of red cultural resources can provide high-quality resources and fundamental theoretical support for ideological and political education of college students.

1.2 Provided correct value orientation for ideological and political education of college students

There is a "natural" connection between values and interests. In the revolutionary war years, the life values and interests of the CPC people, together with the values and interests of contemporary ideological and political education, formed a natural "marriage" in connotation, and provided them with correct values guidance.

1.3 Laying an excellent cultural foundation for ideological and political education of college students

Contemporary ideological and political education fully reflects the support and foundation of advanced culture. The advanced culture of contemporary China inevitably reflects the unity of excellent revolutionary culture with the advanced culture of contemporary China and the characteristics of the reform and opening up era. Objectively and fundamentally, it has laid an excellent cultural foundation for the ideological and political education of college students.

1.4 Enhancing the infectivity and persuasiveness of ideological and political education for college students

Red cultural resources are a historical and cultural heritage, as well as a high-quality

educational and teaching resource, and an objective carrier for people to transcend time and space to comprehend red history. Real and persuasive educational materials can be found in red cultural resources regarding aspects such as outlook on life, values, interests, and morality.

2. EFFECTIVE MEASURES FOR INTRODUCING RED CULTURE INTO CAMPUS

2.1 Seize the main battlefield of ideological and political classroom teaching and integrate into red culture

At present, the red culture resources organized by universities are not yet perfect, and there is no relatively complete operational guarantee mechanism in teaching and management. The process of red culture education is scattered, and a systematic curriculum system has not been formed. We must strengthen the research efforts of ideological and political courses, deeply explore the core and essence of red culture, launch a batch of high-quality ideological and political courses, fully utilize the main channels of ideological and political classrooms, and play the role of red culture in educating people. It is necessary to integrate the concept of red culture education into various major courses, broaden the disciplinary perspective of red culture from different perspectives and ideas, and improve the effectiveness of red culture ideological and political education.

2.2 Creating a Red Culture Atmosphere and Innovating the Second Classroom Form

By carrying out volunteer activities for red culture education, emphasizing the social practical significance of red culture education, fully utilizing the red resources in self media networks, stimulating students' subjectivity, connecting history and reality, integrating theory and practice, and maintaining the red attribute of ideological and political education forever. By restoring red stories and historical scenes, the penetration and influence of red culture can be enhanced, creating a campus environment that advocates red culture. At the same time, fully utilizing network technology, innovating the teaching mode of red culture, making red culture education more targeted, and making the dissemination of red culture vivid, social, and contemporary.

2.3 Taking the system as a guarantee, forming a three-dimensional education system

We must adhere to the moral education concept of "student-centered and ideological and

political education as the initial intention", implement the moral education concept of "student-centered, morality first, and teacher oriented", and strive to improve the quality and ability of the ideological and political teaching staff. To comprehensively promote the development of students' red connotation and quality, based on "cognition emotion behavior", supporting corresponding red culture and moral education goals, curriculum learning, moral education activities, and corresponding evaluation systems in different grades and semesters, promoting the implementation of the academic year credit system, and adhering to the "red ideological and political" concept of "three comprehensive education". We should be guided by the education of red culture among students, with the goal of developing a professional team of counselors, and carry out the construction of red culture resource banks and red culture themed education activities. We should use regular student work meetings, counselor growth education, student symposiums, and other planned activities to carry out key promotion of red culture.

2.4 Enriching the achievements of red culture and serving the main theme of education

Under the premise of "cultivating morality and cultivating talents", the red culture and moral education system in universities can be promoted to various standards, such as datasets, case sets, reflection sets, papers, research reports, system standards, etc. It can provide reference for other universities outside the school gate, form consensus, expand the scope of recognition of institutional systems and project achievements, and resonate with the promotion of the school's institutional system and work project achievements. Integrate educational resources and strive to form a four in one force of school, family, society, and students. Organize a team of ideological and political teachers to learn the latest national current affairs and politics, major policies, and moral education policy documents, understand the trend of reform and innovation and social development requirements, and conduct comparative research on the moral education training system of other universities through visits, information exchange, and other forms. By learning from their typical experiences and practices, optimize and improve them for personal use.

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A New Exploration of Strategies for Integrating Historical Culture into Ideological and Political Education in Universities

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Abstract: History and culture are the spiritual treasures of a country, which can reflect the level of civilization of a country. China is the only country in the world that has not experienced a cultural gap, so its historical and cultural heritage far exceeds that of any country in the world. This is the capital of pride and pride for our citizens. As the terminal of China's education system, universities bear the heavy responsibility of cultivating excellent talents. With the changing demand for high-quality talents in society, universities should comprehensively do a good job in ideological and political education, committed to helping college students form correct ideological concepts and excellent moral qualities, and lay a solid foundation for their future development. Based on the effectiveness of ideological and political education possessed by historical culture, this article provides a detailed analysis of the reform of ideological and political education in universities, and proposes effective strategies for infiltrating historical culture, in order to share and exchange ideas with relevant educators.

Keywords: Higher education; History and culture; Ideological and political education; Fusion strategy

INTRODUCTION

Spirit and culture are the backbone of a nation. As a Chinese, one must understand, inherit, and promote national culture, spirit, and ideology in order to promote the country towards strength, prosperity, and prosperity. In the context of globalization, foreign cultures have had a huge impact on China's local culture. As trendsetters of the times, college students find it difficult to stand alone in rich, fresh, and unique cultures. Some college students even have a serious

obsession with foreign cultures, which is a problem that education in China must attach great importance to. Based on this, ideological and political education in universities, as the main battlefield for cultivating the moral ideology, spiritual literacy, values, and political consciousness of college students, should follow the trend of the times and seek educational paths that are in line with the development of college students' ideological and political situation, aiming to help college students form essential qualities that adapt to their own and social development.

1. THE IMPORTANT SIGNIFICANCE OF INTEGRATING IDEOLOGICAL AND POLITICAL EDUCATION INTO HISTORICAL CULTURE IN UNIVERSITIES

Historical culture is a cultural phenomenon and heritage formed during the development process of a country from scratch, mainly including politics, economy, culture, art, and customs. The historical and cultural heritage to some extent represents the level of civilization of a country [1]. China is an ancient civilization with a history of five thousand years, and its cultural heritage can be described as a "small mountain at a glance". If the long history and culture can be effectively integrated into ideological and political education in universities, it will inevitably create huge educational benefits. Firstly, it is beneficial to enhance the cultural confidence of college students. Modern college students are greatly influenced by foreign cultures, and even have a culture of worshipping foreign cultures. On the contrary, they do not attach importance to and understand their own country's culture. In this situation, China's historical and cultural heritage will fall into a crisis of discontinuity. By infiltrating historical

culture into ideological and political education, it can help college students understand the connotation of historical culture, and make them firmly believe that their historical and cultural heritage far exceeds that of foreign cultures. This is of great significance for enhancing their cultural confidence. Secondly, it is conducive to developing the national pride of college students. When excellent historical and cultural elements are successfully integrated into ideological and political education, college students can deeply understand the development process of the nation through historical and cultural elements, and feel proud to be the inheritors of the great nation, thus shouldering the responsibility of promoting the national spirit.

2. THE PROBLEMS OF INTEGRATING IDEOLOGICAL AND POLITICAL EDUCATION INTO HISTORICAL AND CULTURAL ASPECTS IN UNIVERSITIES

2.1 Insufficient understanding of history and culture among college students

The education system in our country sets up some courses to understand and learn about history and culture from elementary school to university. However, for ancient civilizations with a history of five thousand years, these courses can only show the tip of the iceberg of history and culture to students, and the development of students' historical and cultural literacy is far from enough. Therefore, contemporary college students generally have a problem of insufficient understanding of history and culture, In this situation, the infiltration of ideological and political education into history and culture in universities will face enormous resistance. For example, college students' understanding of history and culture is often limited to textbooks such as middle and high school history, university Mao Zedong Thought, and university Ma Zhe, with the exception of rarely delving into and systematically understanding history and culture through other means.

2.2 The distance between historical culture and practical experience of college students is relatively large

The infiltration of historical culture into ideological and political education in universities requires a reasonable teaching method and content to help college students extract ideological qualities and spiritual literacy from historical culture. the current teaching

methods adopted in ideological and political education in universities are difficult to organically integrate historical and cultural elements with practical experience of college students, ultimately leading to the failure of integrating historical and cultural elements with ideological and political education.

2.3 College students lack interest in learning ideological and political courses

If college students are not interested in the course of ideological and political education, even if teachers integrate historical and cultural elements into ideological and political education, it is difficult for them to fully utilize the ideological and political education effectiveness of historical and cultural elements. the reasons for the lack of interest in learning among college students mainly include the following aspects: firstly, the content of ideological and political education in universities is dull and boring, which brings a sense of fatigue and boredom to students, Prevent students from developing a willingness to learn independently and actively [2]. Secondly, the ideological and political education methods in universities are single and uninteresting. Teachers are enthusiastic about using theoretical indoctrination teaching methods and only focus on imparting concepts, definitions, theories, etc. in the curriculum. In this case, students can only passively learn by rote memorization, and over time, they will lose interest in ideological and political learning.

3. EFFECTIVE STRATEGIES FOR INTEGRATING IDEOLOGICAL AND POLITICAL EDUCATION INTO HISTORICAL CULTURE IN UNIVERSITIES

3.1 Utilizing different channels to infiltrate historical and cultural heritage

The infiltration of historical culture into ideological and political education in universities requires ensuring the richness, diversity, and adaptability of the infiltration channels, in order to expand the contact between historical culture and college students. Only in this way can the effectiveness of ideological and political education in historical culture be better exerted. Based on the advantages of information technology and digital education development, ideological and political education in universities can use information technology to implement specific teaching work, mainly by collecting rich historical and cultural

information from the internet. To enhance the richness and fun of ideological and political education content, it is necessary to present historical and cultural information to students in the form of videos, while identifying opportunities for the integration of historical and cultural information and ideological and political education content. In this way, college students can deeply learn about ideology and politics through history and culture, and also strengthen their cultural confidence.

3.2 Integrating historical and cultural elements into organizational practice activities

Practical teaching is a teaching method that focuses on personal experience, which is beneficial for learners to master knowledge or skills more deeply and systematically. The infiltration of historical and cultural elements into ideological and political education in universities can adopt the strategy of organizing social practice activities to create a realistic and experiential learning and development environment for college students. For example, teachers choose appropriate times to organize college students to visit local historical museums. During this process, teachers should do their homework in advance so that they can explain historical and cultural values to students during the visit activities, and reasonably introduce moral and spiritual qualities from historical and cultural values.

3.3 Exploring local historical and cultural heritage and promoting infiltration

The law of ancient social development in China is to divide and merge, and to merge and merge for a long time. It has created an incredibly brilliant historical and cultural heritage in China. It can be said that any region in China is a birthplace of historical and cultural heritage. Therefore, the infiltration of ideological and political education in universities into local

historical and cultural heritage is a feasible path. Taking universities in Chengdu as an example, teachers can focus on exploring the culture of Shu Han, leading students to understand the origin, development, and decline of Shu Han culture, cultivating a strong interest in Shu Han culture among students, and cultivating good historical and cultural literacy and spiritual qualities.

4. CONCLUSION

In summary, the organic integration of historical culture and ideological and political education in universities has played a very important role and value in developing the cultural confidence and national spirit of college students. The previous text mainly proposed a series of reform strategies for ideological and political education in universities from three directions: using different channels to infiltrate historical and cultural elements, organizing practical activities to infiltrate historical and cultural elements, and exploring local historical and cultural elements to achieve good infiltration. It is hoped that this will be helpful for the cultivation of high-quality talents.

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Analysis Of the Emotional-Based Education in Music Teaching

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Abstract: With the improvement of China's comprehensive national strength, the people's pursuit of spiritual life has gradually increased, and the development of music education has been further put on the agenda, and gradually becoming the focus of the current education industry. While pursuing the professionalism of music education, people often overlook the role of emotional education. Emotional-based teaching focuses on how to help students develop their learning passion. It is one of the important characteristics in education and it will be helpful for students in their quality education. As a teacher, we should know Emotional-based teaching is a major part of education. Therefore, the teachers should help students build stable emotions for music learning.

Keywords: Emotional Education; Music Education.

INTRODUCTION

Emotionality is a prominent feature of music education. There is a high degree of compatibility between emotional education and music teaching. Integrating emotional education into music teaching is of great significance in achieving comprehensive development of students and promoting the improvement of music teaching level.

Emotional-based teaching has influenced modern teaching theory and it has become an integral part of the promotion of education today. Now focusing on emotional-based teaching is one of the important characteristics of educating whole person. Research and experience of emotional-based teaching indicates that teachers should not only try their best to increase students' knowledge, but should also respond to students' emotional needs when learning.

BACKGROUND INFORMATION OF EMOTIONAL-BASED TEACHING

Emotion is a transitory experience that is felt

with some intensity as happening to the self, generated in part by a cognitive appraisal of situation, and accompanied by both learned and innate physical responses (Bernstein, Roy, Wickens, 1997). Emotion is the golden key to move and open people's minds. If teachers educate students with affection, warmth, and nurturing, students will be able to learn better. Learning is the process through which experience modifies per-existing behavior and understanding (Bernstein, Roy, Wickens, 1997). Emotional-based teaching in Music refers to while considering the factor of cognition, the teacher brings the positive effect of emotion into play in order to improve the teaching aims and enhance the effectiveness of teaching.

I. Background Research for Emotion Teaching

Teaching students with emotion, that is, with enthusiasm and feeling touches on the psychological needs of students can be a highly effective approach in helping students to learn. Teachers who are dry and lack passionate enthusiasm may not have any effect. Teachers must inspire students to learn and give them more encouragement, that would put students in a good mood. If a person is in a good mood, he will achieve everything more easily.

American education expert Bloomfield's emotional education theory said many difficulties in the schools are not actually so hard to overcome as long as students are provided with adequate time and the proper help, ninety percent of them are able to learn a discipline. Students who are positively motivated have a higher level than those who lack enthusiasm.

II. Emotional-based Teaching in China

Compared with other areas of study, music learning and emotional attitudes are more closely related. Emotional attitudes are closely in linked with music learning. At present, a growing number of scholars and teachers have

begun to pay more attention to exploring the role of emotions in teaching. The ongoing reform of basic education is important to students concerned.

To maintain a positive emotional attitude toward Music learning is the key to success. Positive emotions and a lively personality will help students take part in Music learning and grasp more learning opportunities. For students, a strong desire to learn and a bold spirit to practice help them to enhance learning efficiency. Teachers should consider the emotional attitudes of the students in their academic education and training. In the process of basic education, teachers should not only stress the accumulation of language knowledge and the development of skills, but should also learn to cultivate positive emotional attitudes.

ROLES OF EMOTION IN TEACHING

Teaching with respect to emotions has two aspects: First is the task of imparting knowledge, skills training, and the development of intelligence, which are hard tasks. Second is the task of helping students to have a positive attitude in class which is indispensable to the first aspect. Memory, thinking and emotional factors involved in the whole process of teaching also have a direct influence on the efficiency of teaching foreign language.

I. Influence on Memory

In an average lifetime, a person would have stored roughly five hundred times as much information as can be found in all the volumes of the Encyclopedia Britannica (Hunt 1982). Memory is much more strongly determined by internal factors, such as how people think and feel (Crail & Lockhart 1972). So the emotional state is closely related to the memory. According to an investigation, ninety-three percent of students said that when they learned enthusiastically, they could understand quickly and remember the material well.

II. Influence on Thinking

Analyzing and resolving problems are complicated processes (Bernstein, Roy, Wickens, 1997) and emotional influences on the thinking process are very obvious. In classroom teaching, there are not only knowledge and information exchanges, but also some emotional exchanges between teachers and students. Modern psychology research shows that an optimistic mood can help students to think and absorb information. Therefore, teachers should arouse

students' positive emotions to make them active and help them to fulfill their learning tasks.

TECHNIQUES OF EMOTION-BASED TEACHING IN MUSIC CLASS

In emotional-based teaching, teachers should set up a relaxed teaching atmosphere, inspire students' learning interest, attach great importance to emotional exchanges with students, and form a harmonious and kind relationship with students.

I. Loving Students

A teacher who does not love students can never become an outstanding teacher. The expectations and love of a teacher will have a tremendous influence on motivating and inspiring students' spirit of learning.

Respect is a basic presupposition of education. Students, as well as teachers, have a sense of self-respect and dignity. Teachers should not be peremptory but should ask and listen to the students' reasonable views about the teaching and make up for the insufficient as best as they can. Only by establishing harmonious relationship with students can teachers design lesson material from the perspective of students and can truly meet the needs of students.

II. Stimulating Students' Learning Motivation

Motivation is the factor that affects the initiation, direction, intensity, and persistence of behavior. Teachers must consider students experience and create appropriate conditions to motivate students and reach the class learning goals. Psychological research indicates that if teachers love their students and have high expectations, that will encourage the students greatly. What's more, teachers should give students trust, sincere respect, confidence and determination.

A good teacher must use a diversity of teaching methods to stimulate students' interest and motivation in learning. Teaching by TV, electronic and multimedia can increase students' interest in learning. Meanwhile, Positive evaluation include some encouraging words also help to promote students' desire to study hard and continuously improve learning efficiency, such as "Good job""you can do it better. "Or "Never mind, I am sure you will do better next time", Such encouraging words are a warm current that supports students' healthy psychological development, and positive feedback will promote students desire to study hard and continuously improve learning efficiency.

III. Making Efforts to Unearth the Materials

Many teaching materials are bound to be boring to students which will affect the enthusiasm of students. Teachers must make these teaching materials specific and vivid to arouse the interest and enthusiasm of students, deepen their understanding of the music knowledge, and improve their ability to apply knowledge of music language. In classroom teaching, teachers should use multimedia and other means of educational software to create an interesting atmosphere for Music learning and communication, and encourage students actively take part in Music learning. Teachers should take advantage of network resources to download some pictures, music, history, and other information about the topic, and give students a voice and three-dimensional thinking in music and communication.

IV. Realizing the Importance of Learning

Today is a time full of explosive knowledge; people need to master more skills and learn more knowledge. Only when people gain enough knowledge can they meet the needs of social development. All people hope they can get success in life, but only a few people can really do so. That is because those people obtain more knowledge and actively pursue their goals. So learning can help people realize their goals. When a person realizes the importance of learning, he will make an effort to learn.

CONCLUSION

More attention to the traditional teaching theories cognition and one-sided understanding

of the means of acquiring knowledge exists largely in the educational field, which ignores the psychological development of the learners, and exaggerates the role of cognitive science. What is difference between emotional-based teaching and traditional teaching in class is that the latter focuses on knowledge, skills, the ideological content of the lesson, and the former focuses on experiences, showing the content of the course.

Using emotional factors in Music teaching means that teachers transfer students' emotion into meeting the emotional needs of the students in learning. Having positive emotions is helpful in students' music learning. Using emotional factors in Music teaching has become more and more important and it has great significance, we should make good use of this teaching tool to promote our Music teaching.

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Research And Exploration on Art Education and Aesthetic Education in Vocational Colleges in the New Era

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Abstract: Aesthetic education is of great significance for art education in vocational colleges in the new era. It is not only a need for art education, but also a need for social development and the promotion of education reform in vocational colleges. Therefore, vocational colleges should attach importance to aesthetic education, strengthen the design and implementation of aesthetic education courses, and provide students with more opportunities for aesthetic learning and practice, in order to cultivate more high-quality talents with aesthetic ability and artistic literacy.

Keywords: Vocational Colleges; Art Education; Aesthetic Education; Practical Path

1. THE SIGNIFICANCE OF ART EDUCATION AND AESTHETIC EDUCATION IN VOCATIONAL COLLEGES IN THE NEW ERA

1.1 Aesthetic Education is a Need for Art Education in the New Era

Aesthetic education is an important component of art education, which helps students establish correct aesthetic concepts and enhance their artistic appreciation and creativity by cultivating their aesthetic ability and artistic literacy. In the new era, art education needs to constantly adapt to the needs of the development of the times, strengthen art education, and cultivate more talents with aesthetic ability and artistic literacy to meet the demand of society for art talents.

1.2 Aesthetic Education is a Need for Social Development in the New Era

Aesthetic education not only involves personal aesthetic and artistic literacy, but also involves multiple aspects such as social culture, economy, politics, and so on. Through aesthetic education, it can promote the prosperity and development of social culture, improve people's quality of life,

and promote the progress of social civilization. At the same time, aesthetic education can also provide support for economic development, cultivate more artistic talents, and promote the development of the cultural industry [1].

1.3 Aesthetic Education is the Need to Promote the Reform of Education in Higher Vocational Colleges

As an important place for cultivating skilled talents, vocational colleges should not only focus on students' professional skills education, but also pay attention to the comprehensive quality cultivation of students, including aesthetic ability, artistic literacy, humanistic literacy, etc. Through aesthetic education, students' comprehensive qualities can be improved, their competitiveness can be enhanced, and a solid foundation can be laid for their future development.

2. THE PRACTICAL PATH OF ART EDUCATION AND AESTHETIC EDUCATION IN VOCATIONAL COLLEGES IN THE NEW ERA

2.1 Curriculum teaching is the main channel for art education and aesthetic education

Art education is an important component of art education in vocational colleges, and curriculum teaching is one of the main channels to achieve aesthetic education and education. Through curriculum teaching, students can learn basic knowledge and skills of art, understand the history and cultural background of art, and cultivate aesthetic ability and artistic literacy. At the same time, curriculum teaching can also guide students to discover, appreciate, and create beauty through various forms, such as classroom teaching, practical courses, lectures, etc., thereby improving students' aesthetic ability and artistic literacy. In addition, vocational colleges can also strengthen art education and education through

other means, such as organizing students to participate in art exhibitions, art competitions, and encouraging students to participate in campus cultural construction. These methods can help students better understand and appreciate art works, improve their aesthetic ability and artistic literacy.

2.2 Campus culture is the main carrier of art education and aesthetic education

Campus culture is one of the main carriers of art education and aesthetic education in vocational colleges. Schools can create a good artistic atmosphere and improve students' artistic literacy by organizing various forms of campus cultural activities, such as art lectures, art exhibitions, and art competitions. At the same time, schools can also strengthen the construction of campus culture, create a good campus environment, and allow students to experience the existence of beauty in a beautiful campus environment, thereby cultivating aesthetic ability. In addition, schools can also collaborate with local art galleries, museums, and other institutions to carry out campus cultural activities, in order to broaden students' horizons and improve their artistic literacy [2].

2.3 Social Practice is the Best Way for Art Education and Aesthetic Education

Social practice is a learning method that combines theoretical knowledge with practical applications, helping students apply their knowledge to practical problem-solving, thereby deepening their understanding of knowledge. This is particularly important for students majoring in art education, as they not only need to master theoretical knowledge, but also need to have practical operational skills. In addition, social practice can cultivate students' teamwork and interpersonal skills. In practical activities, students need to collaborate with others to complete projects, which helps improve their communication, coordination, and organizational abilities. These abilities are also very important for students majoring in art education, as they need to collaborate with different types of people in their future careers to complete teaching tasks and achieve win-win results. In addition, social practice can also help students understand social needs and industry development trends, providing reference for future career planning. Students majoring in art education can understand the current needs and expectations of society for art education, as well

as the development trends of the industry, through social practice, in order to better plan their career development path. Therefore, social practice is an indispensable part of art education, which can help students better understand and apply the knowledge they have learned, cultivate practical and interpersonal skills, and prepare for future career development [3].

2.4 The construction of aesthetic education literacy among art teachers is an important guarantee for aesthetic education and education

As art educators, art teachers' own aesthetic literacy directly affects students' aesthetic education. In order to build a high-quality team of art teachers, it is necessary to start from the following aspects: ① Improving the professional quality of teachers: Art teachers need to have solid basic knowledge of art and educational theory, be able to master modern art education concepts and methods, constantly update their knowledge and skills to adapt to the needs of the times. ② Strengthen the aesthetic ability of teachers: Art teachers need to have a keen aesthetic perception ability, which can guide students to discover the beauty in life, improve students' aesthetic appreciation ability and creativity. Enhancing teachers' cultural literacy: Art education is not only about skill education, but also requires a certain level of cultural literacy. Art teachers need to have a broad cultural background and be able to combine aesthetic education with disciplines such as culture, history, and society to improve students' overall quality. Establishing a good teacher-student relationship: Art teachers need to establish good relationships with students, pay attention to their emotional needs, respect their individual development, create a positive, harmonious, and democratic classroom atmosphere, and stimulate students' creativity and imagination. Strengthen teacher's aesthetic education training: Schools should provide regular aesthetic education training and exchange opportunities for art teachers, promote cooperation and exchange among teachers, and improve their aesthetic education teaching level. It can be seen that building the aesthetic education literacy of art teachers in vocational colleges in the new era requires starting from professional quality, aesthetic ability, cultural literacy, teacher-student relationship, and training, providing important guarantees for aesthetic education.

3. CONCLUSION

The so-called aesthetic education is actually aesthetic education, which is a form of education that imparts aesthetic concepts and experiences. It mainly uses rich intuition to allow the soul to subtly communicate emotions and rationality in the process of feeling forms, understanding meanings, and perceiving values. Then, it integrates willpower choices and motivation choices, thereby achieving comprehensive, coordinated, and harmonious development of various abilities. It is important for improving one's personality. At present, there are differences between art education and art education. the former is an important component of art education, while the latter is the best way of art education. Therefore, in art education in vocational colleges, teachers must explore the path of art education and adopt correct methods to stimulate students' art learning ability, in order to improve their aesthetic ability and lay a solid foundation for future development.

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Comparative Experiments of Marine Antifouling Coatings

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Abstract: Comparative experiments were conducted to evaluate the adhesion, impact resistance, antifouling property, and acute toxicity of three types of antifouling coatings. These experiments employed qualitative analysis, specimen observation, and live mouse culturing as the methods. The findings revealed that the antifouling coating based on silicone modified acrylic emulsion using reactive emulsifier as the main binder (REAC) and the one based on traditional silicone modified acrylic resin as the main binder (RAC) exhibited superior adhesion and impact resistance compared to the coating based on silicone modified acrylic emulsion using normal emulsifier as the main binder (EAC). Regarding antifouling property, REAC demonstrated the highest effectiveness, with minimal attachment of marine organisms observed on the panels over a period of six months. RAC ranked second in terms of antifouling performance. Notably, REAC showed non-toxic characteristics, whereas RAC exhibited toxicity.

Keywords: Antifouling Coating; Reactive Emulsifier; Toxicity

0 INTRODUCTION

Biofouling is a pervasive issue in the marine environment, where the undesired adhesion of microorganisms and the development of biofilms have significant detrimental effects. The consequences of biofouling extend to various areas, including ship hulls, water purification systems, transport or storage systems, heat-transfer components, and static marine structures. The economic and ecological impacts of biofouling in these domains are substantial [1-5]. For instance, the presence of biofouling on ship hulls leads to a decrease in ship speed, maneuverability, and range, thereby impeding overall mission performance [6]. Furthermore,

fouling not only increases fuel consumption by an estimated 30-40% but also requires extensive maintenance efforts, resulting in elevated operational costs [7].

Currently, antifouling coatings are widely used on seafaring vessels to mitigate biofouling. These coatings can be categorized into two groups: those that incorporate biocides and those that are biocide-free. Biocide-free antifouling coatings primarily rely on anti-adhesion properties to deter the attachment of marine organisms. However, the adhesion of these coatings to the substrate is often suboptimal. On the other hand, antifouling coatings formulated with biocides, such as paint compositions, tend to be more effective in preventing fouling. Nonetheless, these coatings face a significant drawback in terms of low environmental compatibility, as they typically exhibit toxicity even at low concentrations [8].

In this study, we have successfully addressed the limitations of previous research by introducing three novel types of non-toxic antifouling coatings. Furthermore, we conducted comprehensive testing on these coatings, evaluating their adhesion, impact resistance, antifouling properties, and acute toxicity. Through this rigorous evaluation process, we were able to identify an optimal coating that excelled in all tested parameters.

1 EXPERIMENTAL SECTION

1.1 Materials

Methyl methacrylate (MMA) was purchased from Shanghai Chengxin Chemical Co., LTD. (Shanghai, China). Butyl acrylate (BA) was purchased from Shanghai Bangcheng Co., LTD. (Shanghai, China). Acrylic acid (AA) and butyl alcohol were purchased from BASF Co. (Germany). Butyl acetate was purchased from Guangzhou Shengwei Chemical Co., LTD (Guangzhou, China). Xylene Was purchased

from Qingdao Yufengda Chemical Co., LTD. (Qingdao, China). Vinyl triethoxy silane(VTES) was purchased from Qufu Wanda Chemical Co., LTD. (Qufu, China). Benzoyl peroxide and ammonium persulfate were purchased from Laiwu Zhenxing Chemical Co., LTD (Shandong, China). Polyoxyethylene nonylphenyl ether (OP-10) and sodium dodecyl benzene sulfonate(SDBS) were purchased from Zhengzhou Yilong Chemical Co., LTD(Zhengzhou, China). Allyl-alkyl sulfo succinic acid bis-sodium salt(M-10S) was purchased from Shanghai Honest Fine Chemical Co., LTD(Shanghai, China). Iron oxide red, calcium carbonate were purchased from Lingshou Xinhui Mining Fiber Plant(Hebei, China). Talcum powder was purchased from Zibo Risheng Chemical Co., LTD(Zibo, China). Nano-TiO₂(20~30nm)was purchased from Hangzhou Wanjing New Material Co., LTD (Hangzhou, China). Nano-SiO₂(20~30nm)was purchased from Zhejiang Yuda Chemical Co., LTD(Zhejiang, China).

1.2 Film forming materials preparation

Traditional silicone modified acrylic resin was synthesized according to CN101033358[9]. Silicone modified acrylic emulsion using normal emulsifier was synthesized according to CN101121857[10].

To synthesize silicone modified acrylic emulsion using a reactive emulsifier, the following steps were carried out:

Preparation of Mixed Monomer:

In a conical flask, 40g of methyl methacrylate (MMA), 35g of butyl acrylate (BA), 0.2g of acrylic acid (AA), 5g of vinyltriethoxysilane (VTES), and 0.5g of M-10S were combined.

The mixture in the conical flask was shaken vigorously to ensure proper mixing of the monomers.

Emulsion Preparation:

In a four-mouth flask, 100g of deionized water, 0.5g of OP-10 (a surfactant), and 0.1g of ammonium persulfate (APS) were added.

The mixture in the four-mouth flask was heated and maintained within a temperature range of 60 to 90°C.

Introduction of Mixed Monomer:

The mixed monomer prepared earlier was added dropwise into the four-mouth flask using a dropping funnel over a period of 2.5 to 3 hours.

Heat Preservation:

After completing the addition of the mixed monomer, the temperature of the flask was raised to 85 to 105°C and maintained within this range for 30 minutes. This step ensures heat preservation and facilitates the polymerization process.

Cooling and pH Adjustment:

The flask was cooled to room temperature after the heat preservation step. the pH of the emulsion was adjusted to a range of 7 to 8 by adding ammonia.

1.3 Antifouling coatings preparation

In this study, three types of antifouling coatings were investigated, namely EAC (Coating A), REAC (Coating B), and RAC (Coating C). the preparation methods for each coating are as follows:

RAC (Coating C):

The preparation method for RAC was based on the process described in CN101033358[9]. However, specific details regarding the preparation procedure were not provided.

EAC (Coating A):

The preparation method for EAC was based on the process described in CN101121857[10]. However, specific details regarding the preparation procedure were not provided.

REAC (Coating B):

REAC was prepared by combining silicone modified acrylic emulsion, iron oxide red, calcium carbonate, talcum powder, nano-TiO₂, and deionized water. the mixture of these components was subjected to grinding in a sand mill for a duration of 3 hours, which was determined as the optimal grinding time.

1.4 Adhesion, impact resistance

In the study, adhesion and impact resistance of the antifouling coatings were evaluated using the following test standards:

Adhesion (tested by GB1720-79):

The adhesion of the coatings was assessed according to the guidelines provided in standard GB1720-79.

GB1720-79 is a specific test standard that outlines methods for evaluating the adhesion strength of organic coatings on various substrates.

The test involves subjecting the coated specimens to controlled conditions such as temperature, humidity, and mechanical stress to determine their adhesion performance.

Impact resistance (tested by GB1732-79):

The impact resistance of the coatings was evaluated following the procedures specified in standard GB1732-79.

1.5 Test specimen preparation

The antifouling coatings were applied using air spray technique to achieve a uniform thickness ranging from 80 μ m to 100 μ m on cold-rolled steel panels (2mm thickness, 200mm \times 300mm). Prior to the application of the antifouling coatings, the steel panels were properly primed with epoxy-polyamide amine coatings according to specified procedures. Subsequently, these coated specimens were allowed to dry at a temperature of 20 $^{\circ}$ C for a period of three days prior to commencing with the measurements.

1.6 Acute oral toxicity experiment of antifouling coating

(1) the antifouling coatings were applied to five tin plates (0.28mm thickness, 50mm \times 120mm) using the dipping coating method. These specimens underwent a drying process at 20 $^{\circ}$ C for three days prior to the commencement of the experiment.

(2) After immersing the five tin plates in deionized water at 25 $^{\circ}$ C for 24 hours, they were subsequently removed.

(3) Experimental Animals: For this study, clean-grade outbreeding little mice weighing between 18 to 22g from SHANGHAI SLAC LABORATORY ANIMAL CO. were selected as the subjects. An equal number of male and female mice were included in the experiment.

(4) Experimental Conditions: the experiments were conducted in a shielded laboratory environment maintained at a temperature of 22 \pm 1.5 $^{\circ}$ C and a relative humidity of 50% \pm 10%. the work-illumination ranged between 160 to 280lx, while the noise level was kept below 60dB.

1.7 Method of antifouling property compare

(1) Experimental Sea Area: the specimens were immersed in the marine environment of Dalian.

(2) Submergence of Specimens: the specimens were immersed at a depth of 2 to 3 meters in seawater.

(3) Observation and Recording: the experiments were conducted by assigned personnel at specific intervals. During these observations, the quantity of marine-living adhesion was measured and an adhesion grade was assigned.

(4) Record of Marine-Living Adhesion Quantity: the quantity and growth of marine-living adhesion were carefully observed and documented.

(5) Classification of Marine-Living Adhesion Grade: the adhesion grade was determined based on the percentage of fouling area:

Slightly better coating performance was indicated when the fouling area was less than 1 to 5%. Coating performance was considered better when the fouling area was less than 5 to 10%. Similar coating performance was observed when the fouling area remained unchanged. Slight deterioration in coating performance occurred when the fouling area exceeded 1 to 5%. Worst coating performance was observed when the fouling area exceeded 5 to 10%. the experiment was terminated if the fouling area reached or exceeded 10%.

2 RESULTS

2.1 Results of adhesion, impact resistance

Results of adhesion and impact resistance were showed in the Table 1.

Table 1 Results of adhesion and impact resistance

Marked No.	Adhesion	Impact resistance
A	Grade 3	2.45 N·m
B	Grade 1~2	4.9 N·m
C	Grade 1	4.9 N·m

2.2 Results of acute oral toxicity experiment of antifouling coating

Results of acute oral toxicity experiment of antifouling coating were showed in table 2.

Table 2 Results of acute oral toxicity experiment of antifouling coating

Marked No.	Sex of mouse	(mg/kg) Dose classification	Number of mouse	Weight			Number of mice died	Mortality rate (%)
				0d	7d	14d		
A	male	5000	10	18.8 \pm 0.8	29.4 \pm 1.9	34.8 \pm 2.5	0	0
	female	5000	10	21.0 \pm 1.0	31.4 \pm 2.3	31.5 \pm 1.9	0	0

	e			9	2	7		
B	male	5000	10	21.3±1.2	31.6±2.2	37.7±2.3	0	0
	femal	5000	10	21.6±0.7	31.2±1.7	35.2±2.3	0	0
C	e			2	4	4		
	male	5000	10	19.7±1.4	30.2±1.7	30.9±1.7	5	50
	femal	5000	10	21.3±3.1	22.0±1.7	21.9±2.7	6	60
	e			2	2	9		

The findings from groups A and B demonstrated that both male and female mice exhibited vitality, with LD50 values exceeding 5000mg/kbBW. Moreover, the coatings applied in groups A and B were determined to be non-toxic. Conversely, the results obtained from group C indicated an LD50 value below 5000mg/kbBW, thus classifying the coating used in this group as toxic. Additionally, a residual amount of organic solvent remained after the coating had dried. Upon immersion in seawater, the paint film released the solvent, which posed a considerable threat to aquaculture organisms, leading to pathological changes or even fatalities. Furthermore, the emission of organic solvents during the coating process can have detrimental

effects on the environment. Consequently, the potential for the application of solvent-based coating is not very well.

2.3 Results of antifouling property

The examined boards were suspended in the oceanic waters on March 11th, 2021. We conducted subsequent examinations and observations on April 11th, May 11th, June 11th, July 11th, August 11th, and September 12th.

2.3.1 Comparison of antifouling property.

The antifouling characteristics of the experimentally treated and untreated test boards, exposed to the tested antifoulants and suspended in marine environments, are presented in Table 3.

Table 3 Antifouling property of the test boards treated with tested antifoulants and hung up in sea water

Checking date	April 11th, 2021	May 11th, 2021	June 11th, 2021	July 11th, 2021	August 11th, 2021	September 12th, 2021
Marked No.	Fouling grade					
untreated	Slightly worse	worse	worse	worse	worse	worse
A1	slightly better	slightly worse	worse	worse	worse	worse
A2	slightly better	slightly worse	worse	worse	worse	worse
A3	slightly better	slightly worse	worse	worse	worse	worse
B1	better	better	better	better	better	better
B2	better	better	better	better	better	better
B3	better	better	better	better	better	better
C1	better	better	better	slightly better	slightly worse	slightly worse
C2	better	better	better	slightly better	slightly worse	slightly worse
C3	better	better	better	slightly better	slightly worse	slightly worse

2.3.2 Analyses of comparative results

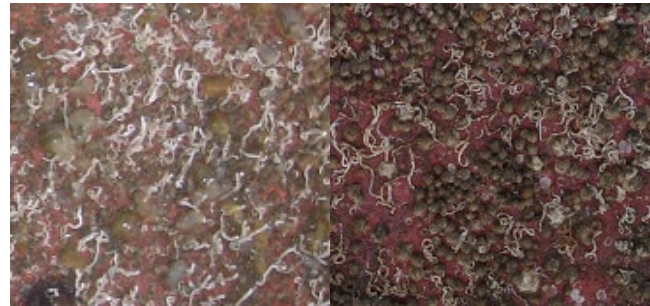
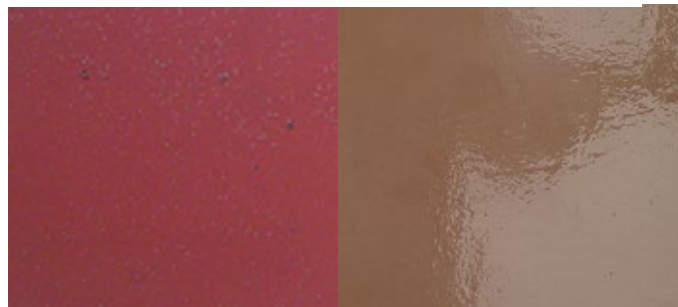


plate without coating

A1



B1

C1

Fig. 1 Comparison of antirouging property of netting hung up in sea water (June 11th, 2021)



plate without coating

A1



B1

C1

Fig. 2 Comparison of antifouling property of netting hung up in sea water (September 11th, 2021)

The initial observations revealed a significant level of marine adhesion on the untreated plate.

In contrast, there was a minimal presence of marine adhesion observed in group A. This

suggests that the antifouling efficacy of group A is relatively limited. One possible explanation for this is the poor water resistance of the coatings formed by silicone modified acrylic emulsions using a conventional emulsifier. This led to foam formation or even film detachment. Comparatively, both of the other two groups exhibited superior antifouling properties compared to group A.

Over time, specimens subjected to various treatments exhibited distinct antifouling characteristics. the subsequent observation revealed a significantly higher degree of marine organism adherence on the untreated specimen compared to the other samples. This observation suggests that in the absence of an antifouling coating, fouling adversely affects the boat's velocity, maneuverability, and range, while also leading to increased propulsive fuel consumption. Consequently, the vessel necessitates extraction from water for mechanical cleaning to effectively eliminate fouling.

The observations spanning from June 11th to September 12th revealed a gradual decline in the antifouling efficacy. This can be attributed to the fact that the coating employed in group C is formulated with a conventional silicone-modified acrylic resin as the primary binder. Due to the insolubility of this resin in water, the release of the antifouling agent was relatively slow, and in some cases, no release occurred at all. Consequently, the antifouling performance of this coating also deteriorated.

The comprehensive experiment results unequivocally demonstrate that group B exhibits the highest antifouling efficacy. the coating in group B is formulated using a silicone-modified acrylic emulsion as the main binder, wherein a reactive emulsifier with polymerizable groups is employed. This unique emulsifier not only possesses excellent emulsification properties but

also enhances the coating's water resistance, adhesion, and weatherability through its reaction with other comonomers. Furthermore, the absence of residual emulsifier on the film surface contributes to the overall excellence of the coating, endowing it with exceptional properties.

3 CONCLUSIONS

The silicone-modified acrylic emulsion coating, employing a reactive emulsifier as the primary binder, is inherently non-toxic. Moreover, during the coating process, there is an absence of any organic solvents being released. the film exhibits excellent adhesion and impact resistance. the development and potential application prospects of this particular coating are highly promising.

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A Method for Identifying Change Points in Traffic Streamline Regression Models

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Abstract: Traffic flow condition recognition is one of the important issues for Intelligent Transportation Systems research, especially for Advanced Traffic Management Systems and Advanced Traveler Information Systems research. The former research mainly concentrated on traffic flow state recognition in advance (namely traffic flow forecasting) and real-time recognition (namely incident detection or traffic flow breakdown detection), but recognition of quantitative change rule of traffic flow was neglected in some degree. Based on traffic flow theory and the statistical change-point analysis of multiple linear regressions, the key to the change-point recognition is analyzed. The method is calibrated and tested with the field data of Liantong Road of Zibo city to verify the validity and the feasibility of the theory.

Keywords: Traffic Flow; Quantitative Rule Recognition; Multiple Linear Regressions; Change-Point Statistics

1. INTRODUCTION

With the flourishing development of Intelligent Transportation Systems (ITS), dynamic traffic flow state recognition has become an important part for ITS research, especially for Advanced Traffic Management Systems (ATMS) and Advanced Traveler Information Systems (ATIS) research. It is a significant precondition to establish derivational and control measures correctly by the research on traffic flow state and the recognition on traffic abnormality timely and accurately [1] [2]. Because of the limitation of Mathematics, the former research is mainly concentrated on traffic flow state recognition in advance [3-8] (namely traffic flow forecasting) and real-time recognition [9-11] (namely incident detection or traffic flow qualitative change detection), but recognition of quantitative change rule of traffic flow is neglected.

2. METHOD OF CHANGE-POINT OF LINEAR REGRESSION MODEL OF TRAFFIC FLOW

The relationship among the various parameters of traffic flow often can be summarized in multiple linear regression problems, such as travel time and traffic volume, lane share, average speed and so on. As the traffic flow always changes, it is often that its distribution changes suddenly at a time, so it is the key issues to identify and determine the change point at both ends of the new law of the return in the study of traffic flow theory, in particular in the identification of the state of traffic flow lean. In this paper, the technology line is expressed as: firstly, the approximate overall distribution of the return is determined using the source data set; secondly, find out the location of the source data change point based estimates and search method of the change point; at last, search for a better law of return at both ends of the change points. To simplify the calculation, only discuss the situation of only with one change point in this paper.

3. AODEL APPLICATION

3.1 Data sources

Data collection interval is 5min, sampling locations is Liantong road of Zibo City, collecting time is 06:55 A. M ~ 13:00 P. M, on April 20st, 2006, data collection include three sets which is travel time, traffic and drive share, each data including 73. According to the theory of traffic flow, these parameters can reflect the basic nature of the traffic flow.

3.2 Algorithm process

Using the statistical method of change point of multiple linear regression proposed in the paper, the interference of all kinds of random factors on the traffic flow can be eliminated, and the time and position of quantitative change occurs can be detected rapidly.

3.3 Experimental results

This test level of the simulation is in the paper, according to the estimated steps in style 2.2 to calculate all the data and to test whether the

change point exist, the results shown in Table 3-1.

Tab. 3-1 test results of change point

Test level α	variance S	variance S*	Test threshold C	S-S* > C	Change -point detection	Actual change point	Jump degree
0.05	179140	140230	22740	Y	08:30	08:30	(-149.3, 1.6, 0.3)T

3.4 Analysis

As is shown from the data, trend of traffic flow appears downward around 08:30 A. M., while the drive share and travel time appear a sudden increase. the statistical results by SPSS shown in Table 3-2, model 1 indicates the regression model of source data, and the correlation coefficient $R = 0.768$; Model 2 show two different regression models around the change point occur, correlation coefficients R is 0.884 and 0.892 respectively, which is more closer to 1 and have a good fitting. Shows that the traffic flow follows different rules of the return around 08:30 A. M (before and after the change point), and it's sub-laws can reflect the situation of

traffic flow more accurately than the original law of return, so the change-point model of multiple linear regression can show the law of quantitative changes in traffic flow more accurately. In addition, because there are a lot of factors that affect conditions of traffic flow, the model of multiple linear regression is especially applicable in solving the situation of non-independent distribution and multiple factors, compared with the other change point model. Judging from the test results, there is a slight lag in the test, which does not affect the accuracy, thus it can be applied better in detection and control.

Tab. 3-2 statistical results of SPSS

Model	Correlation coefficient R	Coefficient of determination R^2	Adjusted value R^2	Intercept	Regression coefficient
1	0.768	0.590	0.563	45.068	Q -1.315 θ 18.529
2($t < t_0$)	0.884	0.782	0.754	-104.090	Q 1.026 θ 12.972
2($t \geq t_0$)	0.892	0.796	0.765	-156.101	Q 3.452 θ 4.184

The time interval is selected as 5min to test, the best time interval is also in question and need to be further explored in practice.

4. CONCLUSION

For the development of ITS, particularly for the development of Advanced Traffic Management System (ATMS) and Advanced Traveler Information System (ATIS), taking field data as an example, a change-point model of multiple linear regression is established in this paper according to statistical characteristics of traffic flow, moreover, to the points of quantitative recognition for traffic flow parameters, the estimation and testing of change point of multiple linear regression are also discussed in detail, and it is verified with field data. By the comprehensive methods of advanced communication technology, electronic control

technology and computer processing technology, the dynamic real-time traffic flow data are collected and transmitted, and according to the quantitative occurrence time based on the above algorithm, whether the abnormality trend of traffic flow is occurred or not can be judged ahead, besides, the traffic network can be induced timely and reasonably by the advanced information communication technologies or variable message boards to take different induced measure, such as driver's making a round by notification. the management of traffic flow and the mining and utilization of the data can be enhanced by the traffic flow change identification algorithm, meanwhile, the analysis

effect for traffic flow can also be improved from different points of data research. With a farther advancement of traffic flow detection system, there must be an improvement on traffic conditions, decrease on traffic jams and implement on ITS.

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The Value of Availability Theory Falls in Communication Research

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Abstract: Availability theory is not a new theory, but the theoretical system is not yet perfect, and it has been introduced into China's communication field of vision for only five or six years, and has become a highly popular theory. The application of the theory of availability in Chinese communication research is currently plagued by problems such as lack of clear conceptual understanding, overly static analytical frameworks, and insufficiently scientific research methods. By analyzing the existing research on availability theory and re-examining the theoretical connotation, it is proposed that future research on availability theory needs to adhere to the basic logic of human-environment ecological interaction, and to explore the value of communication research on availability theory, which can be carried out in four aspects: the possibility of direct cognition of human beings on the environment, the key role of environmental light on visual perception, the interaction between human beings and the environment, and the complementarity between human beings and the environment.

Keywords: Availability Theory; Communication Studies; Visual Perception; Mediatized Society

1. TRAVELLING ON THE THEORY OF AVAILABILITY

The theory of affordance was first articulated by the American scholar Gibson (1979) in his monograph *The Ecological Approach to Visual Perception*, in which the concept of affordance is defined as "The affordance of the environment is what it provides for the the concept of affordance is defined as follows: "The affordance of the environment is what it offers to the animal, what is provided or furnished, whether good or ill..... It implies complementarity between the animal

and the environment" [1]. In his book, Gibson proposed an innovative theoretical perspective that was completely different from traditional cognitive psychology, in which, although it took an experimental approach to interpretation, it was difficult to be verified or falsified because the author died the year of the book's publication and had not yet developed a complete theoretical framework.

On this basis, later scholars have continuously tried to clarify the concepts, sort out the veins and develop theories, such as Turvey (1992), who considers availability as a property of the environment (property) or a dispositional property of the environment (dispositional properties)[2]. Reed's (1996) best-known understanding of availability is that "from a developmental and evolutionary perspective, the availability of an animal's environment exerts a selection pressure on the process of animal activity" [E. S. Reed.] [3] " Sanders (1997) notes that A more advanced approach is to use availability itself as an ontology [4]. Stoffregen (2003) argues that availability is an emergent property of the animal-environment system [5]. Hofter (2003) states that "Affordances are not just about environmental..... affordances, but also about relational mechanisms. [6]".

Nonetheless, the academic community reached a broad consensus on the value of availability theory. Availability theory has begun to be noticed, introduced and adapted by interdisciplinary scholars in cognitive neuroscience, design, management, communication, education, sports, etc. In 1988, Norman introduced the concept of availability to the design community, and through the exploration of human-computer interaction, provided new ideas and enriched the theoretical connotation of the field of environmental design.

Wellman (2003), when he introduced availability to the study of communication, extended availability to social availability (Social Affordance), "I don't advocate technological determinism I do advocate technological determinism. derives availability as Social Affordance, "I do not advocate technological determinism..... I study the 'social availability' of technology: the possibilities that technological change offers for social relations and possibilities offered by technological change to social relations and social structures. [7] " Nagy and Neff propose the concept of Imagined Affordances, "Imagined Affordances help bridge the gap between the "entities" of human use of technology, platforms, algorithms, data, and media..... better integrating the material, mediating and affective aspects of human-technology interactions. "

The diverse interpretations of availability by foreign scholars provide a reference for communication studies. In recent years, foreign scholars have begun to explore the use of cognitive neurological experiments, behavioural experiments, mathematical modelling and other methods as analytical methods for the theory of availability in their researches, which provide new examples for the theory of availability [8].

2. AVAILABILITY THEORY ENTERS CHINA

The introduction of "availability" into Chinese communication studies originates from scholars such as Pan Zhongdang (2017), who, when discussing the definition of "new media", put forward an analytical framework for the availability of new media - the availability of information production, social availability and mobile availability - and further refined the assessment indicators. -The availability of information production, social availability and mobile availability, and further refinement of the assessment indicators [9]. *Journalism and Communication Review*, 2017(01):2-19.]In the five years since then, the theory of availability has been called one of the hot theories of concern in Chinese communication research, and scholars have tried to combine the theory of availability with specific research fields, with more attempts focusing on topics such as Internet platforms, intelligent communication, digital news, webcasting, and embodied communication. Chen Changfeng and Qiu Yunxi, in the light of the cross-media

communication practice of Star Wars, suggest that the media availability of this high-quality IP in the process of generation includes three aspects: identity positioning, character empathy, and social relationship complementation [10]. Chen Hong and Yang Qifei (2020) combined with the reflection on the subjectivity of human beings, proposed that the intelligent communication mode of "borderless integration" should be constructed from the three levels of human beings and information, human beings and themselves, and human beings and technology to enhance the user experience, promote the unity of body and mind, and promote the integration of human beings and technology. It is proposed that we should construct a "borderless integration" intelligent communication model from the three levels of people and information, people and themselves, and people and technology, so as to improve the user experience, promote the unity of body and mind, and the symbiosis between people and machines [11]. Haiyan Wang and Jichen Fan (2021) A framework of temporal availability of news in the digital environment, i. e., news production (present, retrospective, and preparatory), news distribution (on-site, immediate, and repetitive), and news consumption (co-temporal, multimedia, and inter-embedded)[12]. *International Journalism*, 2021, 43(09):116-135.]Liu Rui (2022) analysed the technical availability of Jitterbug in five aspects: mobility, visibility, editability, sociality, and personalisation. [Liu R. Analysis of technical availability of online video broadcasting under the vision of computer-mediated communication [J]. *Journalism and Communication Review*, 2022, 75(01):32-46.] At present, the logic of research in the field of communication is still mainly borrowed from the framework of media function assessment to evaluate specific media forms, technologies or platforms, and has not yet been able to make use of the new research methodology to dynamically assess the state of ecological interaction between human and media (environment), which is the value of the theory of availability.

3. THE RETURN OF CONNOTATIONS AND THE VALUE OF DISCOVERY IN THE THEORY OF AVAILABILITY

3.1 The possibility of direct human perception of the environment.

"When we look at objects, we perceive their availability, not their nature. " "It is not necessary to distinguish the whole nature of a thing; indeed, it is impossible to do so. Perception is economic. " (Gibson, 1977) Gibson also illustrates the possibility of availability being misperceived through visual cliffs (support surfaces are mistaken for air) and adults passing through transparent doors (barriers are mistaken for air). "Although things often do not look like they are supposed to look, nevertheless, the basic availability of the environment is perceived, and usually perceived directly, without much learning" (Gibson, 1979:134). Observing a toddler of more than 3 years old, he has no knowledge base about the physical properties of the mobile phone and the guidelines for its use, but after he gets the smartphone, he will explore to tap with his finger and continue to tap according to the change of the screen image, this process is the process of the toddler's interaction with the mobile phone, and the toddler can master some of the functions of the mobile phone to a certain degree and realise the direct cognition without having to learn about the relevant knowledge.

3.2 The critical role of ambient light in visuoperceptual cognition.

Adequate attention is given to ambient light as a variable in cognitive research. Gibson states that the theory of availability is a fundamental departure from existing theories of value and meaning, "The central question in the theory of availability is not whether they exist and are real, but whether information is available to perceive them in ambient light" (Gibson, 1979:132). "The structure of ambient light, a fundamental property of the environment, prescribes availability, thus demonstrating the importance of the light environment in availability. In communication science, the development of VR/AR technology makes light a key element in people's visual perception, all kinds of virtual reality, augmented reality environment can not be separated from the role of light, the key to the current pain points in the industry is also the light field vision technology. In the virtual world, what is the difference between the shaping of different ambient light on people's visual perception, and how to use ambient light to meet people's visual perceptual needs when using the media, this is an entry point worth paying attention to. the emphasis on the mode of visual cognition in the theory of availability makes the

theory inherently embodied, which is also a hot direction in the field of communication at present, and we can try to combine the two in our research.

3.3 Emphasis on human-environment interaction.

The proposal of the theory of availability is essentially a proposal of a monistic cognitive model of the ecological interaction between human beings and the environment. Past studies either emphasised the dynamic role of the subject or the attributes and functions of the object, and were accustomed to a binary mode of thinking, without seeing the interaction between people and the environment as ecological in nature, and thus it was difficult to get rid of the static, cross-sectional method of analysis in the study, and it was impossible to study it from a dynamic, interactive and ecological perspective. Compared with the era when the theory of availability was born, we have entered the era of digital life, and the interaction between people and the media (environment) is more frequent, more tightly embedded, and more deeply inter-constructed. In the fields of intelligent ageing, intelligent parenting, and so on, robots with companion function make people produce unique emotional experiences from interaction, which is also worth paying attention to. We should focus on observing the change of human-mediated environment interaction with the help of availability theory.

3.4 Emphasis on the complementarity of people and environments.

The complementarity between the human and the media environment, especially with the intelligent media, is a key concern for future research. On the one hand, the media (environment) provides technical support for human development. Information search, social media, online education, e-commerce shopping, sharing economy, etc. all provide great convenience for our life. On the other hand, people also provide human, intellectual and emotional support for the development of media (environment). In the era when the theory of availability was born, the environment took natural objects, animals and unintelligent objects. If the existence of natural environments can exist without the existence of human beings, the existence of media environments can hardly exist alone without human beings, and the need of environments (media) for human beings is obvious. Taking algorithms as an example, Huangfu Boyuan proposed an analytical

framework of algorithmic availability, and found that materiality, mediated experience and emotional attitude constitute the core elements of "algorithmic imagination" [14]. In addition, based on the training (i. e., "learning") of sensor data, a high degree of simulation of the senses is able to recognise human emotions, thus enabling robots to continuously develop human-like emotional capabilities [15]. It is also a better direction to take the complementary relationship between human beings and media environments as an entry point for the theory of availability in communication studies.

4. RESEARCH PERSPECTIVES ON AVAILABILITY THEORY

Availability theory is not a "mature theory", but rather a more macro, dynamic and scalable theoretical perspective that is favoured by a number of disciplines, rather than a theory, and is predominantly conceptual and lacks a well-developed systematic framework or extensive empirical research. However, there is also the problem that the theoretical framework of analysis is not scientific enough. For example, when the theory of availability is used in the field of communication, the analytical framework is mainly to evaluate the media from a functional point of view, and this measurement and assessment is again caught in the traditional research model of static and cross-section. the ambiguity of the theory itself is the difficulty in applying the theory of availability at present, but it is also the vitality and charm of the theory of availability today, 40 years later. Gibson may not have been able to foresee the social media pandemic and the age of artificial intelligence when he discussed availability theory, but his innovative perspective and theoretical conceptualisation have left us with more room to expand our research today.

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Key Areas, Content Structure, And Practical Path of Digital Transformation in Higher Education

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Abstract: In the context of the development of information and digital society, the education sector in China must recognize the trend of social development and comprehensively accelerate the process of digital transformation and education reform, aiming to improve the overall level of education in our country. As the main battlefield for talent cultivation in China, higher education should also achieve digital and information-based education, so as to cultivate talents that better meet the needs of social development. This article provides a detailed analysis and in-depth exploration of the key areas, content structure, and practical path of digital transformation in higher education, with the aim of sharing and exchanging ideas with relevant educators.

Keywords: Digital Transformation; Higher Education; Key Areas; Content Structure; Practical Path

INTRODUCTION

The digital transformation of higher education involves a wide range of content and fields, which requires universities to implement comprehensive reform and innovation measures based on their own educational situation in the digital transformation work, ensuring that various fields and contents can be digitized in sequence. Education methods, educational platforms, educational content, and teaching staff are all key elements that affect the quality of education, and are naturally key landing points for the digital transformation of higher education. Universities should rely on information technology to build a comprehensive digital education system, ensuring that each educational element can better serve the education cause.

1. KEY AREAS OF DIGITAL TRANSFORMATION IN HIGHER EDUCATION

1.1 Educational content field

Educational content is the carrier of knowledge presentation and one of the necessary conditions for carrying out educational activities, so the digital transformation of higher education needs to prioritize educational content [1]. Traditional educational content design is mostly based on textbooks. Teachers design specific educational content according to the textbooks, and then students record and organize it into lecture notes. Although it can achieve the expected educational goals, there is still significant room for improvement in knowledge breadth, depth, and presentation methods, and even teachers cannot interact with learners. Based on this, the digital transformation of higher education emphasizes innovative ways of presenting educational content, as well as increasing the breadth and depth of educational content, such as using multimedia functions to present educational content in the form of images, videos, and audio. This has a significant impact on stimulating learners' interest and enthusiasm for learning.

1.2 Education platform field

Education platforms can be understood as places or venues for educational activities. The digital transformation of higher education requires accelerating the construction process of smart classrooms, providing learners with a modern and digital learning platform to meet the basic requirements of digital transformation of higher education [2]. For example, by using modern information technology to build an online education platform, teachers and students can conduct real-time and interactive teaching and learning on the internet through devices such as mobile phones and computers. This to some

extent breaks the spatial and temporal limitations of traditional education on teaching and learning, and is conducive to improving the flexibility, scientificity, and adaptability of higher education.

1.3 In the field of educational technology

One of the key areas of digital transformation in higher education is how to use modern information technology to achieve diversified educational models, which can be regarded as the field of educational technology. For example, introducing electronic whiteboards, multimedia and other functions into the classroom, creating a student-centered smart classroom model, and providing students with a more superior learning environment. For example, increasing the application of network information technology, creating a "online+offline" blended teaching mode, and further improving the quality and efficiency of teaching.

2. THE CONTENT STRUCTURE OF DIGITAL TRANSFORMATION IN HIGHER EDUCATION

2.1 teacher

Whether the digital transformation of higher education can achieve the expected goals is closely related to the comprehensive literacy and ability of teachers. Only by combining advanced technology with high-level teachers can we truly achieve digital education transformation. At present, many teachers have relatively low information technology literacy, making it difficult to design and organize information technology teaching activities in practical teaching, and even some teachers are unable to proficiently operate computers and multimedia equipment. In this situation, teaching work will not be able to smoothly transition. Based on this, as one of the important content structures of digital transformation in higher education, teachers must focus on improving their information technology literacy to ensure that they can become the supporting force for digital transformation.

2.2 student

Students occupy a dominant position in the entire educational activity, and it can be said that the content, methods, and goals of education should be fundamentally student-centered. Therefore, the digital transformation of higher education needs to grasp the content structure of students in order to ensure the success and scientificity of digital transformation. For

example, designing the most suitable information technology teaching content based on students' habits of using information technology, learning goals, and knowledge level, in order to help students use information technology reasonably and improve learning quality and efficiency.

3. THE IMPLEMENTATION PATH OF DIGITAL TRANSFORMATION IN HIGHER EDUCATION

3.1 Investment in infrastructure

The basic condition for the digital transformation of higher education lies in the supporting infrastructure. As the saying goes, "a clever woman cannot cook without rice." Even with a top-notch teaching staff, it is difficult to achieve information-based teaching without complete digital education facilities. Based on this, in the process of reform in higher education, it is necessary to increase investment in digital transformation funds and implement refined management in the process of fund application to ensure that every payment can be specifically implemented, in order to prevent the problem of private appropriation of special funds. For example, after obtaining dedicated funds for digital transformation, universities will be coordinated and allocated by relevant management departments to purchase electronic equipment, multimedia equipment, computers, projectors, etc. required for information technology teaching, in order to quickly build smart classrooms for practical teaching.

3.2 Optimize course offerings

Curriculum is the battlefield for carrying out educational activities, and a complete curriculum system can ensure the quality of education to the greatest extent. Therefore, the digital transformation of higher education should do a good job in optimizing curriculum settings, thereby providing strong support for the successful transformation of higher education. For example, teachers need to relocate their courses to the internet to achieve online, remote, and blended learning, ensuring that students can have a more comprehensive and systematic teaching experience. In addition, teachers also need to fully consider multiple elements such as students, information technology, and teaching content when setting up courses, ensuring that the curriculum can organically connect various elements, thereby achieving the goal of improving educational quality.

3.3 Provide training services

As the main force in carrying out educational activities, teachers' own qualities directly affect the quality and efficiency of education. In the task of digital transformation of higher education, it is necessary to provide training services for teachers to ensure that they can effectively use information technology to achieve information-based teaching. For example, universities regularly organize in-service teachers to learn information technology and assess their level of information technology teaching, in order to improve their information technology literacy and enhance their awareness of information technology teaching.

3.4 Exploring Open Education Resources

In the context of the development of information and digital society, data has become a thread connecting people and things, as well as objects and objects. Only by mastering the ability to obtain, analyze, organize, and apply data can we adapt to modern society faster and better. the digital transformation of higher education can be based on open educational resources, fully utilizing big data to expand educational dimensions, providing students with high-quality educational resources outside of school, and truly achieving digital education and information-based teaching. For example, in the design of teaching content, big data can be used to collect information outside of textbooks, which plays a very important role and value in

expanding students' knowledge and improving their cognition.

4.CONCLUSION

In summary, digital transformation is a necessary path for China's education sector to adapt to the development of modern society. Higher education institutions need to have a long-term vision, take practical actions, implement comprehensive education reform work, and aim to build a digital education system that conforms to the characteristics of the times. the previous text mainly made a systematic analysis and put forward relevant suggestions from three dimensions: key areas, content structure, and practical path of digital transformation, hoping to be helpful for the development of Informa ionization in higher education in China.

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Research on the Reform of Ideological and Political Education in Higher Vocational English Curriculum under the Concept of "Three Comprehensive Education"

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Abstract: Under the concept of "comprehensive education", the research on the reform of ideological and political education in vocational college English courses aims to promote the deep integration of English education and ideological and political education, and achieve the educational goal of cultivating morality and talents. Currently, with the development of society and the acceleration of globalization, English, as an internationally recognized language, plays an important role in cross-cultural communication. Meanwhile, as one of the compulsory courses in vocational colleges, English courses are of great significance in cultivating students' international perspectives and cross-cultural communication abilities. However, traditional English curriculum teaching methods often only focus on imparting language knowledge and skills, while neglecting the importance of ideological and political education. Therefore, this article explores how to integrate ideological and political education elements into vocational English courses, promote the reform of ideological and political education in English courses, and improve the quality of talent cultivation.

Keywords: Three comprehensive educations; Vocational English; Course ideological and political education; Teaching reform; Implementation path

1. IMPLEMENTING THE "THREE COMPREHENSIVE EDUCATION" TO SOLVE THE PROBLEMS OF "SUPERFICIALITY, HARD INTEGRATION, AND TWO SKINS" IN IDEOLOGICAL AND POLITICAL EDUCATION COURSES

"Three comprehensive education" refers to the education of all staff, the entire process, and the all-round education, emphasizing the full participation, full tracking, and all-round penetration of educators. In the reform of ideological and political education in vocational English courses, attention should be paid to implementing the concept of "comprehensive education" and solving the problems of "superficiality, hard integration, and two skins" in ideological and political education. Firstly, it is necessary to clarify the responsibilities of all teaching staff in the education work, establish a sound assessment mechanism, and encourage them to actively participate in ideological and political education; We should also pay attention to the overall design of ideological and political education in the curriculum, so that ideological and political content can be organically integrated with English knowledge, avoiding the phenomenon of rote application and superficiality. Secondly, attention should be paid to the growth process of students, and personalized ideological and political education plans should be developed based on their characteristics and needs to achieve full tracking. On this basis, it is also important to pay attention to comprehensive infiltration, integrating ideological and political education into all aspects of English teaching. Not only should we focus on imparting knowledge, but we should also cultivate students' cultural awareness and values, so as to form a good character [1].

2. BUILDING A NEW "FIVE IN ONE" FOREIGN LANGUAGE TEACHING SYSTEM TO SOLVE PROBLEMS SUCH AS LACK OF OVERALL PLANNING IN FOREIGN LANGUAGE TEACHING AND

LACK OF CLOSE INTEGRATION WITH PROFESSIONAL AND SCHOOL DEVELOPMENT

The new "Five in One" foreign language teaching system includes five aspects: language skills, cross-cultural communication, professional English, general education, and ideological and political education. The establishment of this system aims to solve problems such as the lack of overall planning in foreign language teaching and the lack of close integration with professional and school development. Firstly, it is necessary to clarify the goals and positioning of foreign language teaching. Language skills are the foundation, cross-cultural communication is the expansion, professional English is the application, general education is the supplement, and ideological and political education is the soul. Through the construction of this system, English teaching can serve students' growth and future career development more comprehensively and systematically. Secondly, emphasis should be placed on the practicality and practicality of English teaching. By carrying out various forms of teaching activities and practical projects, such as English corners, cultural festivals, simulated business negotiations, etc., to improve students' English application ability and cross-cultural communication ability, and then pay attention to their professional and career development needs, combine English teaching with professional courses, and lay a solid foundation for future career development.

3. STRENGTHENING THE MAIN FORCE OF "DUAL TEACHER INTEGRATION" TEACHERS AND SOLVING THE PROBLEM OF WEAK AWARENESS AND INSUFFICIENT ABILITIES OF FOREIGN LANGUAGE TEACHERS AND IDEOLOGICAL AND POLITICAL TEACHERS IN COLLABORATIVE EDUCATION

"Dual teacher integration" refers to teachers who possess both professional qualification certificates and industry professional qualification certificates. In the reform of ideological and political education in vocational English courses, attention should be paid to strengthening the construction of a "dual teacher integration" teaching team, and solving the problems of weak awareness and insufficient abilities of foreign language teachers and ideological and political teachers in

collaborative education. Firstly, it is necessary to strengthen the training and guidance of teachers. By organizing teachers to participate in relevant training and learning exchange activities, the ideological and political quality and professional competence of teachers can be improved. Subsequently, teachers are encouraged to deepen their practical training in enterprises and industries, understand industry development trends and market demands, and provide more practical examples and materials for teaching. Secondly, it is necessary to establish a cooperation mechanism between foreign language teachers and ideological and political teachers. Promote the organic integration of foreign language teaching and ideological and political education through joint development of teaching plans and collaborative teaching activities. At the same time, attention should be paid to leveraging the language advantages of foreign language teachers and the ideological advantages of ideological and political teachers, to achieve complementary advantages and collaborative education. On this basis, establishing a sound teacher evaluation mechanism is also a crucial part, including teacher education work in the evaluation scope, and motivating teachers to actively participate in ideological and political education work [2].

4. BUILDING A "FOUR-DIMENSIONAL LINKAGE" OPERATING MECHANISM TO SOLVE THE PROBLEM OF INABILITY TO ENSURE THE ORDERLY PROMOTION AND EFFICIENT DEVELOPMENT OF FOREIGN LANGUAGE TEACHING REFORM

Under the concept of "comprehensive education", the reform of ideological and political education in vocational English courses can be promoted by constructing a "four-dimensional linkage" operating mechanism. This mechanism mainly refers to the integration of forces from four dimensions: teaching, practice, management, and service, forming a collaborative force for educating students, ensuring that foreign language teaching reform can be orderly promoted and efficiently developed. In terms of teaching dimensions: integrating ideological and political elements into English courses, organically integrating ideological and political content into English courses by revising the teaching syllabus, writing textbooks, and developing teaching plans. At the same time, teachers should

combine the characteristics of the curriculum to explore the knowledge points that can be carried out in ideological and political education, so that students can receive ideological and moral education while learning language knowledge. In terms of practical dimensions, by organizing diverse practical activities such as English corners, English speech competitions, English drama performances, etc., ideological and political education is combined with practical activities, allowing students to experience and feel the content of ideological and political education in practice. In addition, English social practice activities can also be carried out, such as compulsory English training and volunteer services for foreign teachers, so that students can experience ideological and political education while serving society. In terms of management dimensions, establish and implement strict teaching management systems to ensure teaching order and quality. At the same time, strengthen the daily management of students, guide them to establish correct values and moral values through the formulation of student rules and the implementation of moral education. In terms of service dimension: Strengthen services for students in learning, life, and psychology, especially for students with learning difficulties and high psychological pressure, more attention and assistance should be given. By providing high-quality services, students can feel the care and support of the school and better immerse themselves in learning. Through the linkage of these four dimensions, the problem of not being able to guarantee the orderly promotion and efficient development of foreign language teaching reform can be effectively solved. It can also promote cooperation and communication among teachers, improve their education awareness and ability, and better achieve the goal of "comprehensive education"[3].

5. CONCLUSION

In summary, under the concept of "three comprehensive education", the reform of ideological and political education in vocational English courses aims to achieve the goal of educating all staff, the whole process, and all aspects. By integrating ideological and political education into English courses, we aim to

cultivate students' cross-cultural communication and critical thinking abilities, while guiding them to establish correct values and worldviews. Through this article, it is found that integrating ideological and political education into vocational English courses is feasible and helps to improve students' comprehensive quality. Through the reform of textbook mining, classroom design, teaching methods, and evaluation systems, the organic integration of English and ideological and political education can be achieved. the construction of the teacher team and the optimization of the teaching environment are also important factors to ensure the success of ideological and political teaching reform. In the future, we should further deepen the reform of ideological and political education in vocational English courses, explore more effective implementation methods, and cultivate more high-quality talents with a sense of social responsibility and cross-cultural communication skills.

TOPIC

Research on the Practical Path of "Ideological and Political Education" in Higher Vocational English Course under the "Three-dimensional Education" Framework (GZYJ09).

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Research on the Establishment and Operation Mechanism of Vocational Education Group

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Abstract: Establishing a vocational education group is an important trend in the development of vocational education. Through the demonstration of the necessity of establishing Jiangsu Navigation Vocational Education Group, this paper explores the main mode selection and management operation mechanism of establishing a vocational education group at present. The research shows that the establishment mode is outsourcing mode, overall planning mode, and joint-stock mode; the operating mechanism includes resource sharing and coordination mechanism, market and innovation mechanism, competition and cooperation mechanism, and school enterprise joint interaction mechanism.

Keywords: Vocational Education Group; Form; Operating Mechanism

1. PREFACE

A vocational education group is a consortium formed by two or more schools, enterprises, or social organizations as member units, with teaching and research in vocational education as its main activities and not for profit. Vocational Education Group is a vocational education consortium formed to adapt to the development of market economy. Vocational Education Group is a consortium of similar vocational colleges, colleges in the same industry, and other social forces with different theme resources. The establishment of vocational education groups can enable close cooperation between universities and enterprises in areas such as cooperative education, talent cultivation models, professional settings, curriculum construction, practical training bases, graduate employment, and teacher team construction, which is of great significance for promoting vocational education and economic and social development.

2. DEVELOPMENT STATUS OF VOCATIONAL EDUCATION GROUP

The establishment of vocational education groups in China began in the early 1990s. In 1991, the State Council issued the "Decision on Vigorously Developing Vocational and Technical Education", which laid a policy foundation for the development of vocational education groups. In the mid-1990s, vocational education groups developed rapidly, and some places adjusted their industrial structure and integrated educational resources by forming vocational education groups.

Since 2002, Jiangsu Province has established multiple vocational education groups in the fields of electronic information, commerce, agriculture and forestry, construction, chemical engineering, electromechanical, textile, tourism, etc., such as Jiangsu Information Vocational Education Group, Jiangsu Electromechanical Vocational Education Group, Jiangsu Food Vocational Education Group, etc. We have participated in nearly 300 vocational colleges and joined nearly 600 industries and enterprises, achieving functions such as resource sharing and joint research and development between schools and enterprises. We have innovated talent training models such as work-study alternation, combination of industry and education, and order training. Under the overall guidance of the government, various vocational education groups have gradually formed their scale and advantages, improving the ability of universities and enterprises to adapt to the market. In recent years, foreign vocational education institutions such as Australia and Canada have established long-term and stable cooperative relationships with provincial vocational colleges through direct investment, cooperative education, and teacher training.

3. ESTABLISHMENT MODE AND OPERATION MECHANISM CONSTRUCTION

The formation mode of vocational education groups can be classified according to different standards. According to the internal structural characteristics of vocational education groups, the standard is divided into three types of models: outsourcing model, overall planning model, and joint-stock model.

① Outsourcing mode: refers to the external collaborative relationship mode formed by agreements between vocational colleges and enterprises, including vertical mode, horizontal mode, and mixed mode. Vertical mode: the collaborative relationship between similar vocational colleges is the primary form of vocational education groups. Vocational colleges only communicate in academic, information, and other aspects through agreements. Horizontal mode: Vocational colleges engage in vertical collaboration between industry, academia, and research institutions and production enterprises based on the sequence of the industrial chain. This model began to be applied in the early stages of vocational education, connecting technology application and talent supply with the needs of enterprises, in order to meet the needs of talent cultivation and market integration. the characteristic of this model is the complementary advantages of cooperation, mainly focusing on technology transfer, project service consulting, talent cultivation, etc. However, due to industry differences, the success rate of cooperation is not high. Mixed mode: refers to a multi-directional cooperation mode with three main parties as the main focus, which is a crisscross pattern. Three main parties: technical achievements (vocational colleges), investors (individual investors or financial institutions), and production and operation enterprises. the characteristics of this model are: low cooperation risk, high potential, and obvious benefits, but some achievements involve multiple universities, and there are also issues of rights and interests, so the success rate is also low.

② Coordinated mode: refers to the industry university research cooperation mode coordinated by the government or industry associations, in which government departments or industry associations play an important role in overall coordination. Government coordination mode: the mode of coordination and coordination between government departments

in charge. the biggest characteristic of this type of model is its policy advantages, but its disadvantage is that it relies too heavily on the government and its policies. Due to institutional constraints, it lacks vitality in management, market competition, and other aspects, and the vast majority cannot achieve balance of interests and optimization of goals. Association coordination model: A coordinated model of industry associations based on market regulation. the association coordination model has developed to meet market demand. the characteristic of this type of model is that market regulation is the main means of resource allocation, and industry associations play a role in communication and coordination. Its disadvantage is that it is less likely to win government policy support, and this model is more common in foreign countries and Taiwan region of China.

4. OPERATING MECHANISM

After in-depth research on the development of domestic and foreign education groups, the operating mechanism is a key factor in the healthy development of vocational education groups. the main operating mechanisms of vocational education groups include: resource sharing and coordination mechanism, market and innovation mechanism, competition and cooperation mechanism, and school enterprise joint interaction mechanism.

① Resource sharing and coordination mechanism: Grouped education can achieve resource sharing and complementarity, improve scale and efficiency. In terms of human resources, schools and enterprises can send and hire each other. For example, Jiangsu Construction Vocational Education Group implemented the "Double Teacher Construction Double Hundred Plan", which selected 100 professional teachers from various universities to enter the enterprise and hired 100 engineers from various enterprises to enter the school through the "Hire in, Go out" approach from 2008 to 2009. In terms of material resources, schools and enterprises can jointly build internship and training bases, and the connotation of material resources can also be expanded to include discussions, demonstrations, and training. For example, Jiangsu Agricultural and Forestry Vocational Education Group has built a Jiangsu Agricultural and Forestry Science and Technology Demonstration Park for

research and use by various universities within the vocational education group. In terms of financial resources, we will establish a company to solve logistics and service issues. Through the construction of a vocational education group, unity and coordination can be achieved in five aspects: "training objectives, teaching management, teaching monitoring, enrollment management, and international exchange and cooperation", as well as in five aspects: "professional construction, curriculum design, teaching plans, teacher construction, and student employment".

② Market and Innovation Mechanism

According to research on education groups that have developed well both domestically and internationally, their development goals are very clear. People at different levels and fields in society have different needs for educational services. Well-running vocational education groups are based on market demand and meet these social needs through the power of vocational education groups. For example, Apollo Group in the United States has a team specifically responsible for course development, while maintaining consultation and understanding of employees in the enterprise, to ensure that the group's courses meet the development needs of the enterprise, and to ensure that the group's talent cultivation meets career needs. In order to cultivate talents that meet social needs, China Vocational Education Group needs to continuously explore and innovate, solve current problems, and ensure the healthy development of the group.

5. CONCLUSION

Establishing a vocational education group, integrating educational resources, is conducive

to the cultivation of professional talents, improvement of scientific research service level, adjustment of professional structure, and close connection with relevant enterprises. Establishing a vocational education group is a new way and model to achieve "resource sharing, school enterprise complementarity" between vocational education and enterprises, accelerate the cultivation of high skilled talents, and is a product of the combination of school and social development, market demand, and the planning conditions of modern vocational education system. Accelerating the reform and development of vocational education and enhancing its ability to serve the local economy are of great significance for promoting economic and social development.

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Analysis of the Current Situation of Vocational Education Management Under the Background of School Enterprise Cooperation

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Abstract: In recent years, under the background of education reform and innovation in China, many educational and teaching methods have undergone tremendous changes. Among them, the education and teaching work of vocational colleges is a highly concerned content. Due to the rapid development of the social economy, the demand for talents in various industries is increasing, gradually shifting from the previous focus on diplomas and theoretical knowledge to comprehensive literacy and practical ability. Therefore, in this situation, continuous improvement is needed in the education and teaching work of vocational colleges. In this article, the author analyzes the problems in higher vocational education management under the background of school enterprise cooperation, and elaborates on the relevant countermeasures for higher vocational education management under the background of school enterprise cooperation.

Keywords: School enterprise cooperation; Vocational education; Education management; countermeasure

INTRODUCTION

Vocational colleges themselves are an important component of the modern industrial system, playing a role in cultivating talents, providing productivity, and technological innovation. However, with the rapid development of society, industrial enterprises have continuously increased their requirements for talents. They not only need to have a solid theoretical foundation, but also need to have a high and proficient skill level. These are the key focuses of vocational colleges in China. Therefore, how to help vocational college students transition from

student identity to apprenticeship identity and then to craftsmanship requires detailed and in-depth research by vocational colleges. Moreover, there are certain differences in the culture and atmosphere of each industry and enterprise. Only by promoting the continuous integration, mutual promotion, and mutual promotion between schools and enterprises can we cultivate more excellent technical and skilled talents.

1. THE PROBLEMS IN HIGHER VOCATIONAL EDUCATION MANAGEMENT UNDER THE BACKGROUND OF SCHOOL ENTERPRISE COOPERATION

1.1 Insufficient participation of vocational colleges in marketization

In order to help vocational college students integrate into society, work, and enterprises more quickly, it is necessary to strengthen their understanding of market competition, job seeking methods, and market rules in the teaching process. Although this can help students better integrate into society, there are still many problems in the specific implementation process of vocational colleges, such as the influence of traditional educational concepts and the more traditional curriculum settings in some vocational colleges. Lack of specificity and practicality. This leads to a certain disconnect between the employability of students after graduation and market demand. Secondly, some vocational colleges often send teachers to study in enterprises in order to help them improve their practical teaching abilities. However, due to institutional and identity constraints, the overall learning effect, participation level, and integration level are not very good. For example, some teachers cannot

achieve a balance between teaching tasks and part-time work. In addition, nowadays, students' demand for vocational colleges is gradually shifting towards "academic qualifications and degree certificates", so many students have a mentality of completing established teaching tasks and have not truly devoted themselves to vocational learning [1].

1.2 Differentiation of school enterprise management concepts

As the main source of modern industrial talents, vocational colleges belong to the administrative system, and many teaching and management contents are mainly based on institutional education. In this situation, there are significant differences between the educational and teaching objectives of vocational colleges and the needs and development plans of enterprises. For example, schools focus on cultivating students' comprehensive qualities and academic abilities, while enterprises pay more attention to their practical skills and adaptability. This leads to certain conflicts and contradictions in curriculum design, teaching methods, and other aspects. Moreover, the management style of schools is usually more bureaucratic, emphasizing the execution of processes and regulations, while the management style of enterprises is more flexible and pursues efficiency. When management issues are involved in school enterprise cooperation, different management methods may lead to communication difficulties, decision-making difficulties, and other situations. In addition, schools and enterprises have different values, especially in terms of talent cultivation goals and evaluation standards. Schools focus on the comprehensive development and academic research of students, while enterprises place greater emphasis on their practical abilities and professional qualities. This leads to different value orientations and evaluation systems in school enterprise cooperation [2].

2. RELATED STRATEGIES FOR HIGHER VOCATIONAL EDUCATION MANAGEMENT UNDER THE BACKGROUND OF SCHOOL ENTERPRISE COOPERATION

2.1 Taking the market as the core, constructing a mechanism for cultivating talents in higher vocational education

In order to help vocational college students better adapt to society, the school must quickly transform its educational and teaching

philosophy, formulate scientific teaching plans and talent skills training strategies. Firstly, schools should target the needs of different industries and professions, update and optimize course offerings through close cooperation with enterprises, ensure that course content is closely aligned with actual career needs, and cultivate students with the necessary practical skills and professional knowledge. At the same time, the school should also introduce industry experts and outstanding business personnel with rich practical experience to serve as vocational teachers. These teachers can not only provide students with cutting-edge industry knowledge and technology, but also help them understand the actual work environment and challenges. Secondly, the school also needs to carry out two-way communication and cooperation with enterprises, including regularly holding corporate lectures, campus job fairs, project cooperation, etc. This can strengthen the connection between schools and enterprises, understand the latest market demands and development trends, and provide students with better internship and employment opportunities, such as building training bases with cooperative enterprises, providing a real work environment and advanced equipment. Students can engage in practical operations and project implementation in these training bases, improving their practical skills and problem-solving abilities. In addition, a high-quality evaluation system is also very important, evaluating the quality of education from the aspects of students' comprehensive quality, skill level, and professional ability. This system should include multiple indicators such as academic performance, internship performance, career certification, and employment status of students, comprehensively reflecting their comprehensive abilities and laying the foundation for the management of vocational education in the context of school enterprise cooperation.

2.2 Building a school enterprise integrated vocational education management system

In order to achieve consistency between the management concepts of vocational colleges and enterprises, it is necessary to transform the previous cooperation methods, build a negotiated and integrated management system, and introduce third-party companies or actual project content to promote the integration of the execution level of both schools and enterprises. This common management mechanism,

management team, and management goals can greatly improve the quality of school enterprise cooperation and lay the foundation for cultivating more outstanding graduates. For example, through close cooperation between schools and enterprises, we can jointly develop curriculum and practical training plans that meet market demands. Enterprises can provide cutting-edge knowledge and technological requirements in the industry, while schools design courses and conduct practical teaching based on these requirements, making what students learn more closely related to practical work. For example, schools and enterprises can jointly promote vocational certification and skill training, such as industry qualification certification, vocational skills competitions, etc. This can align the training objectives with market demand, improve students' competitiveness and employability. In the process of cooperation between schools and enterprises, it is also necessary to establish student internship and employment support mechanisms, such as signing internship agreements between schools and enterprises to provide student internship opportunities; Enterprises can participate in activities such as graduate employment recommendations and campus recruitment to provide employment opportunities for students. Finally, in order to help schools and enterprises better carry out mutual integration work, it is necessary to establish regular communication and exchange mechanisms, including bilateral meetings, school enterprise symposiums, project

evaluations, and other forms. This can timely understand the needs and feedback of both parties, solve problems in cooperation, and continuously improve the management system.

3.CONCLUSION

In summary, in this article, the author analyzes the problems of insufficient participation of vocational colleges in marketization and differences in management concepts between schools and enterprises in the context of school enterprise cooperation in higher vocational education management. the author also elaborates on the relevant countermeasures of higher vocational education management in the context of school enterprise cooperation, such as building a mechanism for cultivating talents in higher vocational education with the market as the core, and building a school enterprise integrated vocational education management system.

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