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Research on the Application of Network Resources in College Mathematics Classrooms

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Abstract: The idea of "integrating education into entertainment" has been proposed for a long time, but its application effect is not satisfactory. The emergence of information technology provides new ideas for the implementation of "integrating education into entertainment". By utilizing commonly used digital devices and network resources, "integrating education into entertainment" can be achieved. Propose strategies to improve teaching quality by utilizing online course resources, that is, breaking through teaching priorities and difficulties, enhancing teachers' modern information technology knowledge and skills, enriching teaching methods, strengthening course teaching design, and achieving significant teaching reform results, improving students' learning efficiency, and enhancing teachers' teaching level and professional abilities.

Keywords: Network Resources, College Mathematics Classrooms

1. INTRODUCTION

With the continuous development of information technology, various digital devices have emerged one after another, such as communication devices, image processing devices, audio playback devices, video playback devices, projection devices, etc. Although there are various types of learning devices, their application effect in teaching is not very good. At present, most schools have built multimedia classrooms and campus networks, but the usage rate of these digital devices by teachers is not high, and the usage effect is average. They are basically in the stage of using campus networks to collect basic teaching courseware and using multimedia classrooms to play courseware.

The "cramming" teaching model is difficult to improve. The so-called "duck feeding" teaching refers to the teacher explaining the key points of knowledge to students in the classroom, and then allowing them to learn and accept and review after class. In the college mathematics class, for many reasons, teachers always focus on the students in a very short time and consume a lot of physical strength and energy in the class. It is relatively easy for students with strong receptivity. "Further Mathematics" is abstract. The advantage of online teaching resources is to make full use of images, words and sounds to lead students into a vivid and colorful educational environment, stimulate students' senses in multiple ways, simplify complexity, and deepen their understanding of mathematical concepts and theorems through visual images, making students more proficient in learning.

For example, the calculation of multiple integrals, especially the calculation of triple integrals in Chapter 10 of "further mathematics" is the difficulty of this chapter. Teachers can use online teaching resources to vividly demonstrate the projection method and section method of triple integrals to students in the form of animation, to strengthen the understanding of the difficulty of "how to convert triple integrals into triple integrals". Interest is the best teacher. If students are not interested in mathematics teaching, even if they master many learning methods and techniques, it is difficult to induce innovative thinking. The application of online resources in the classroom can use sounds, animations, videos, etc. to help teachers frequently transform innovative teaching methods, stimulate students' interests, satisfy their freshness, and desire for expression, and thus tap into students' new potential, allowing them to actively participate in the learning process.

Analyze the relevant lyrics in the song "Greater China", and then abstract the "two dragons at home" in the lyrics into the concept to be learned based on the meaning of the set, that is, the set, and abstract the "Yangtze River" and "Yellow River" as two elements of this set. Explaining the meaning of sets in such an easy-to-understand way can enhance students' interest in learning and deepen their understanding of the basic concept of sets. Modern educational technology can concretize abstract knowledge in mathematics, facilitating students' understanding. There is a lot of knowledge in the knowledge of further mathematics, which needs the help of modern educational technology to help students understand. For example, teachers can use multimedia to transform relevant knowledge into images or videos, making the knowledge no longer dull and more vivid and interesting. The human brain has a better understanding of images and videos.

2. THE PROPOSED METHODOLOGY

2.1 Definition of Network Resources in the New Era

The advantages of large amount of technical information, vivid image, and strong expressive power can improve teaching efficiency. The application of network resources in mathematics classrooms should attach importance to inducing students' innovative thinking, encouraging them to make reasonable judgments, boldly guess, and question, and cultivating students' ability to flexibly use and actively create by stimulating their thinking. In mathematics classrooms, due to the gradual deepening of teaching content, students' attention is often easily disturbed and influenced.

To enable students to fully grasp the key points of mathematics textbooks, teachers can use various information in online resources to stimulate students' senses, express some abstract concepts in intuitive and visual ways, develop students' thinking, expand their spatial imagination, turn difficulties into ease, grasp teaching priorities, and break through teaching difficulties. The dull classroom atmosphere not only makes students feel oppressed, but teachers' teaching energy will also be easily exhausted. With an active classroom atmosphere, students can not only open their minds, but also actively interact with teachers and actively cooperate with

teachers' teaching work, thus promoting the teaching quality of further mathematics. A good learning atmosphere has a two-way impact on both teachers and students.

Under the model of "cultivating applied talents", students' theoretical teaching hours are reduced accordingly. To avoid the drawbacks of having more content and fewer class hours, higher requirements are put forward for university mathematics teaching. Updating teaching requirements means transforming traditional single knowledge requirements into comprehensive requirements in terms of knowledge, ability, and quality, enhancing students' interest in learning and their ability to solve practical problems. In the teaching design of "further mathematics", it can be divided into three stages: preparation before class, learning in class, and feedback after class. In the pre class preparation stage, students first familiarize themselves with how to use online resource sharing course online platforms. There are currently many such platforms, such as the "China University MOOC" national high-quality course learning platform. Students only need to download and register the "China University MOOC" app before class. Teachers collect student registration information, assign learning tasks based on actual situations, and students watch course videos as required, complete the online course content, and take corresponding exams.

The purpose of this stage is to help students clarify their learning objectives, grasp the key points and difficulties. During the in class learning stage, teachers should shift from traditional classroom injection teaching to heuristic teaching, fully leveraging students' innovative awareness and creative thinking. In the feedback stage after class, teachers and students can exchange learning experiences and answer questions online through the learning communication class platform, continuously improving students' learning enthusiasm and initiative, and achieving good teaching results. Through students' independent thinking and discussion, as well as group collaboration and hands-on exploration, gradually connect the area knowledge related to various shapes in students' minds.

2.2 The Application of Network Resources in College Mathematics Teaching in the New Era

The traditional teaching method is a combination of chalk and a blackboard. Although it has a process of formula reasoning and is easy to understand, it is a waste of time. Multimedia teaching can not only make the teaching content vivid and vivid, but also better compare and analyze the content related to charts, shorten teaching time, effectively avoid the defects of less class hours and more content, and make full use of multimedia.

Students explore and report on these issues, and then teachers cleverly guide and guide them to form correct thinking abilities and cultivate their innovative thinking. Teachers should collect relevant resources based on the teaching content and objectives, and then fully integrate the collected teaching resources into the lesson plan during lesson preparation. Teachers should use network and electronic technologies to comprehensively collect knowledge and can also use library resources to access relevant materials. Information collection aims to enable teachers to prepare the knowledge involved as comprehensively as possible, which can give students more choices in the classroom learning process. Students need to preview, refer to the knowledge in the book, and then use network or computer technology to find more comprehensive knowledge. Only through preview can students have a more comprehensive understanding of their self-learning mathematics situation.

Both teachers and students can engage in effective learning before the start of the classroom, so that both parties can perform better in the classroom. After nearly two years of teaching reform and practice, the "further mathematics" course in our college has gradually changed from traditional classroom teaching to the teaching mode of combining multimedia and network resources. The combination of classroom teaching and online assisted learning has fully mobilized students' learning enthusiasm, made the classroom atmosphere more active, and significantly improved the learning efficiency. Compared with 2017, the average score of 2018 students in the final examination of "Further Mathematics" has increased by 11.8 points, the passing rate has increased by 15%, and the proportion of students with high scores above 80 points has also increased significantly. Innovation is the vitality of a nation, and "innovation" provides students with a vast world, transforming their brains from a "warehouse" to a "processing field", and "innovation" provides good conditions for their healthy growth.

The application of online resources in mathematics classrooms has indeed brought significant changes. It has optimized the classroom teaching environment, deepened the density of classroom teaching, and brought the mathematics classroom into an atmosphere full of vitality, passion, and freedom. Established in 1696, it made significant contributions to the study of limits and derivatives in mathematics. "L'Hôpital's rule" includes the formula of "zero to zero", "infinite to infinite" and "other infinitives", all of which can be traced back to their origins. Teachers can divide students into several groups and have them discuss relevant knowledge points between groups. The results are secondary, but what is important is the knowledge learned and innovative thinking explored during the process of exploring formulas.

Taking small groups as a unit, allowing students to explore knowledge has improved their participation, not only in learning knowledge, but also in cultivating their ability to "learn". Most of the members of the research group are young and middle-aged teachers with strong learning abilities. To do a good job in the research work, the research group consists of.

3. CONCLUSION

This article analyzes the shortcomings in current mathematics classroom teaching in universities, lists the important significance of the application of modern educational technology in university mathematics classrooms, and points out the relevant strategies for the participation of modern educational technology in university mathematics classroom teaching. Modern educational technology is the application of modern technological products in teaching, based on traditional mathematics teaching in universities. Modern educational technology has a significant impact on the development of mathematics in universities, which is conducive to improving students' learning initiative and teaching quality. The complete integration of modern educational technology into university mathematics classrooms is a lengthy process that requires the active cooperation of universities, teachers, and students. The production of electronic teaching plan is the main content of classroom teaching reform of "further mathematics" course. The members of the research team improved the outdated way of thinking in the process of producing electronic teaching

plan from scratch, from existing to refined, and improved the teaching level and professional ability.

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The Application of Digital Media Art in the Teaching of Animation Film Specialty in the Era of Big Data

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Abstract: As an emerging product of the rapid development of science and technology in the new era, digital media art is the application of computer processing, digital special effects, and other technologies in the field of artistic creation. The birth and development of digital media art has greatly improved the quality of film and television animation creation and has a profound impact on the future development of film and television animation. This article intends to take digital media art as the research base, so that the art forms and types will present a variety of characteristics. Based on this, the connotation of digital media is summarized, and the role of digital media in film and television animation is analyzed from the aspects of deepening emotional expression, perfecting visual effects, and deepening storylines applied strategies for digital media art.

Keywords: digital media art, animation film, big data

1. INTRODUCTION

With the continuous change of people's daily habits and the continuous emergence of various new technologies under the new media perspective, the penetration of digital media art in the real world is increasing, especially in the field of film and television animation. Not only has the quality of film and television animation been significantly improved, but it has also revolutionized the creative concept of film and television animation to a certain extent and has effectively promoted the sound and rapid development of the film and television animation industry. As a typical representative of the Internet age, the wide application of digital media art in film and television animation has opened a broader development space for film and television animation. Through preliminary discussion, we know that the period when digital media art formed a certain influence was in the 1990s, with the improvement and perfection of computer technology. After decades of development, it has gradually become popular in real life.

From the perspective of artistic creation, in the case of traditional media, digital media art is used as the best tool to show the beauty of art, making it more appealing and unique. The rapid development of digital media has provided a new form of expression for many artistic creations. The application of digital media art is included in various fields, for example, by applying digital media art to visual art works, by establishing architectural models, environmental garden design models, etc. Nowadays, under the promotion of the film and television market environment, the effective integration of digital media art and film and television works creation has prompted China's film and television industry to enter a new stage of development, and presents multi-dimensional creative effects.

For example, the 3D "Avatar" movie has also become a representative symbol of the creation of film and television works in the new era. At this stage, the application of 3D technology in the creation of film and television works is gradually popularized, bringing more shocking film and television effects to people. Highlighting the value and role of digital media art will also promote the innovation and transformation of my country's film and television industry. Motion effect production technology is a key part of the post-production of film and television animation. Except for music effects and dialogue content, other sounds are within the scope of motion effect production. In animation production, film and television works can be made more vivid by using motion effect production technology. Therefore, film and television animation post-producers must fully understand the content, rationally conceive, and improve the audio-visual effects of video animation. Motion effect production technology can simulate the specific situation of the scene and enhance the overall performance of the scene.

For example, when processing the voices of characters in film and television works, it is necessary to use motion effect production technology to produce sound effects that match the characteristics of the characters. In film and television animation works, the noisy crowds and noisy squares we often see are all made by special effects in the later stage. The Internet under the background of the new era has become a part of people's daily life, and the birth of new media has accelerated the pace of information dissemination and promoted the real-time sharing of information.

2. THE PROPOSED METHODOLOGY

2.1 Interpretation of the Connotation of Digital Media Art

After the creation of a film and television work is completed, it can be displayed on multiple new media platforms at the same time for network users to watch, analyze, discuss, communicate, and forward the work in time. For now, many Internet users are used to quickly browsing or sharing short film and television animations that they think are valuable or meaningful on the film and television APP, and this also provides a strong creative motivation for film and television animation creators, so that they can continue to archive and continuously continue to launch new works without stopping to meet the actual needs of the audience. From a macro perspective, digital media art not only promotes film and television animation to meet the needs of the public in a more diversified way, but also builds a good channel for displaying works and interacting with each other. Implementations provide more modes and paths.

In film and television animation works, the role-playing and art design often attract the audience's attention. The emotions shown in the work can be displayed through the character's emotions and the design of the environment atmosphere. In the production of film and television animation, it is necessary to focus on mastering the personality characteristics of the characters and the design of the story plot, so that the emotions of the characters can be displayed richly, mastering the emotions of the entire film and television animation, and highlighting the theme. Specifically, the language and tone of the characters can be optimized by means of changes in the emotions of the characters, deepening the development of the plot, and other forms. Enrich the character's emotional characteristics such as changes in character movements and clothing changes, support the entire atmosphere, and show the emotional tone and self-worth of the work.

By deepening emotions, the effect of film and television animation works can be effectively improved. In the form of creative integration, it uses advanced computer image processing software to reasonably construct virtual scenes and character images according to the actual creation needs of film and television works. After that, it is necessary to organically combine the constructed virtual scenes and characters with the actual shooting pictures. At the same time, to further improve the authenticity of the shots, it is not only necessary to effectively construct virtual scenes and characters, but also to flexibly adjust the characters' movements and activity trajectories in light of specific creative requirements. The various feelings conveyed by the story can be produced through the post-production of film and television animation.

Using digital media technology, in the design of the storyline, re-create and deepen the original story content. Film and television animation producers must grasp the completeness of the storyline. Through editing, they can appropriately add some reversals of the storyline, enhance the suspense of the storyline, pay attention to controlling the direction and rhythm of the story, and achieve the effect of touching the hearts of the audience. Collage various elements such as background photos and characters to show a stronger sense of age and reality, especially the integration of Japanese Ukiyo-e style, which more powerfully expresses all the sufferings of all living beings to survive depression and suffering.

There is also "big fish and begonia", which won the best animated feature film award at the Budapest International Animation Film Festival. This film animation selects various ancient legends such as "Shan Hai Jing" and architectural scenes of ethnic minorities in my country, and organically combines the two, telling the audience the mythical story of the host of Begonia Flower Growth—the girl Chun, who fights against fate to repay her kindness.

2.2 The application value of digital media art in film and television animation

The presentation of the picture of the work will often bring a more intuitive visual experience to the audience. Watching is an important way for the audience to grasp the plot and content of the entire film. First, the creation of visual effects has a direct influence on the film, and the technological transformation of the screen also makes the entire film and television animation work more perfect, which includes dealing with various problems in the pre-production process. Part of the problem, in this case, through the application of digital media art, it will be transformed and innovated in the later stage, to attract the attention of the audience more, improve the audience's evaluation of the entire film and television works, and improve the quality of the film and television works.

In addition, in the film and television works of "Avatar", people have a deep impression of the storyline and theme, and have achieved remarkable creative achievements in the film and television industry, mainly relying on the creators to transform the simple narrative plot into a dual time and space narrative structure, that is to use digital media art to continuously promote the development of the storyline, so as to achieve the narrative effect of dual time and space. At the same time, in this narrative mode, the application of digital media art infiltrates the concept of the two worlds of the earth and Pandora to people and enhances people's visual experience in the two narrative plots of time and space, and promotes the overall The story development is more coherent and exciting. Most of the film and television staff lack certain professionalism and work experience, resulting in the slow progress of film and television animation production.

Therefore, to make the film and television industry develop rapidly, it is necessary to pay attention to the cultivation of the professional quality of the staff. On the one hand, it is necessary to transfer professional editorial staff, and strictly control the professional technical level and professional ethics of the staff and provide pre-job training for the staff who enter the job, to strengthen the mastery of professional knowledge. Film and television media units should regularly organize training activities, update the knowledge of staff in a timely manner, and cultivate employees' innovative spirit and dedication to work. An excellent animation scene design must first have a real and vivid sense of space. Space is the imaginary form corresponding to the physical form. Although it cannot be touched, the visual effect it produces is real.

Digital media art intensifies the changes in object color and virtual reality by adjusting the distance in the process of expressing space in animation scenes. The distance can effectively extend the layering of the close shot, middle shot, and long shot of the lens. Motion effects are an important part of the post-production process. In addition to music and dialogue, various sounds can be involved in the scope of motion effects, such as action sounds and natural sounds. Especially in the animation production process, the entire film and television works are more vivid and flexible through the processing of motion effect production technology. Post-production personnel should have an in-depth understanding of the content of the screen, through scientific conception and processing, and according to the director's thoughts and thoughts, to realize the transmission of audio-visual language art.

Various motion effects technologies in the post-production of film and television animation can realize the simulation and reproduction of on-site conditions and improve the overall expressiveness of the scene. When digital media art is applied in the creation of film and television works, it mainly relies on computer reconstruction and digital advantages to establish a new visual virtual scene. Under the leadership of digital media art, it is naturally integrated into the virtual world, prompting people to enhance people's artistic experience based on the impact of visual images. At the same time, the integration of digital media art also highlights the boundary between the real world and the virtual world of film and television works.

3. CONCLUSION

To sum up, the application of digital media art in film and television animation works requires animation creators to have solid digital media art application and creation

capabilities, as well as comprehensive and reasonable art re-creation skills. The scientific application of digital media art in film and television animation must not only revolve around the entire animation story, but also strictly follow the objective laws of the development of things. In the innovation link, it must integrate national and contemporary elements, keep up with the trend of social development, and follow the creative concept of serving the people and putting people first, convey Chinese culture and spirit into the design of film and television works, and promote the direction of my country's film and television works world.

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Research on the Comprehensive Reform and Innovative Development of Postgraduate Education in Colleges and Universities Under the Background of Big Data

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Abstract: Emphasizing the development and application of big educational data technology in the field of postgraduate education and teaching is an effective way to achieve the goal of modernization of postgraduate education in my country. This paper aims at the reform of graduate course education and teaching, from the aspects of teaching concepts, teaching organization and guidance, teaching methods, teaching management and evaluation, etc., focusing on promoting the reform of postgraduate training mechanism, innovation of training mode, and construction of quality assurance system is the key to comprehensively deepening reform, emphasizing coordination and overall advancement are important considerations for comprehensively deepening reforms, and improving the construction of institutional systems is the fundamental guarantee for comprehensively deepening reforms.

Keywords: comprehensive reform, innovative development, postgraduate education, big data

1. INTRODUCTION

In November 2014, at the National Postgraduate Education Quality Work Conference and the 31st meeting of the Academic Degrees Committee of the State Council, Comrade Liu Yandong delivered an important speech and clearly stated that "the comprehensive reform of postgraduate education has been fully launched. From the overall and strategic perspective, Seize the opportunity, highlight the key points, take multiple measures, firmly grasp the quality core, further deepen the reform, promote the rule of law, and greatly improve the quality of postgraduate education."

As the direct carrier of the national graduate education reform and an important part of the comprehensive reform of colleges and universities, the comprehensive reform of postgraduate education in colleges and universities is directly related to the development of postgraduate education in colleges and universities and the improvement of the overall quality, reflecting the implementation of the national "four comprehensive" strategic deployment and the comprehensive reform of higher education in colleges and universities. The political awareness and overall awareness of colleges and universities reflect the will, development goals, reform ideas and innovation paths of colleges and universities to implement the comprehensive reform of national postgraduate education. The comprehensive reform of education has very important theoretical and practical value.

Although the author does not fully agree with Victor and Kenneth's view that people will "give up the desire for causality and instead focus on correlation" in the era of big data, practitioners of higher education in the big data environment keep up with the pace of the times and take the initiative. Changing the concept of education and teaching and keeping pace with the times will be the "new normal" faced by educators in the era of big data. For the teaching of management postgraduate courses, the core of course teaching is to cultivate students' innovative thinking and practical ability in management. The teaching process should highlight the research in the field of management or provide background knowledge and methods for the research in the field of management. The social science nature of most courses determines that in the era of big data, course teaching especially needs to guide students to establish an eclectic thinking concept, which requires educators to establish big data thinking, pay attention to the cultivation and quality of digital media, information technology and other skills promote. From the perspective of its basic semantics, reform refers to changing the old and unreasonable parts of things into a new state that can adapt to the objective situation.

From the perspective of sociology, the object of reform is the production relationship, which is to make partial or fundamental adjustments to the original production relationship, so that the production relationship and productivity are in a more harmonious state, thereby promoting the benign development of society. A series of reform practices at home and abroad in ancient and modern times have shown that reform is a powerful driving force for promoting social development in different countries, different societies, and different times. It is a major measure to promote economic and social development.

2. THE PROPOSED METHODOLOGY

2.1 Teaching mode of postgraduate education in the environment of big data

Pay attention to the three key elements of postgraduate training model innovation, postgraduate training mechanism reform, and postgraduate education quality assurance system construction. The three are manifested in postgraduate education such as integration of postgraduate education resources, enthusiasm and initiative incentives for postgraduate education-related subjects, and postgraduate education system construction. The horizontal connection of the elements presents a complete institutional system from the main body structure, the definition of responsibilities and powers to the mutual relationship. Teachers can also designate a group to be responsible for explaining certain chapters in the classroom, and the group members need to work together and determine the main lecturer Before class lectures, postgraduate students should make full use of network resources to learn and digest the lectures. If you have any questions, you can discuss with the teacher and group

members in advance. With the assistance of the class teacher, the group members will complete the preparatory work before the course teaching. .

Establish the idea of differentiated and personalized education. We must pay attention to the cultivation of postgraduates' independent thinking and problem-solving ability, which is the key to the cultivation of postgraduates' innovative ability, which requires postgraduate tutors to establish the idea of differentiated and personalized education. The "National Medium- and Long-term Education Reform and Development Plan (2010-2020)" promulgated by our country in 2010 also pointed out that we should pay attention to the different characteristics and individual differences of students and develop the superior potential of each student. To deepen the comprehensive reform of postgraduate education, we must highlight the problem orientation, that is, the goal of comprehensive reform is to solve some outstanding problems in my country's postgraduate education, to promote the scientific and orderly development of postgraduate education.

So, what are the outstanding problems in postgraduate education in my country at present? When the Graduate Education Management Department of the Ministry of Education was drafting and formulating the "Opinions on Deepening the Reform of Postgraduate Education", it organized a special class to carry out special research on the main problems of postgraduate education. Extensive research has concluded three essential issues in the development of postgraduate education: applying big data technology to education and teaching management is an effective path to accelerate the modernization of my country's higher education. To realize the modernization of higher education, all colleges and universities have invested funds in the construction of graduate teaching management systems in recent years, and the developed system has greatly facilitated the daily teaching management of graduate students. However, most teaching management systems have a single function, which is far from satisfying the effective use of big educational data.

In the classroom, the teacher organizes and guides the postgraduates to conduct full discussions on difficult and doubtful issues. Finally, the teacher judges the discussion process and summarizes the discussion results. Teachers can also assign a group to be responsible for explaining certain chapters in the classroom. Team members need to divide and cooperate and determine the speaker. Before class explaining, graduate students should make full use of network resources to learn and digest the content. If you have any questions, you can contact the teacher and the group members discuss in advance, and with the assistance of the teacher in charge, the group members complete the preparatory work before the course teaching. For a long time, the development of postgraduate education in my country has been dominated by scale expansion, ignoring connotative development; emphasizing the incremental development of postgraduate education, ignoring stock reform; emphasizing the construction of "hardware" conditions and ignoring the construction of "software" systems, resulting in a single subject of graduate education resource allocation , Insufficient allocation of postgraduate education resources, low benefits and low efficiency of postgraduate education, thus affecting a series of problems such as unbalanced postgraduate education structure and low quality of postgraduate education, it is urgent to adapt to economic construction and social development by changing the development mode of postgraduate education This is the realistic requirement of the current comprehensive reform of postgraduate education in our country.

2.2 Emphasis on coordination and overall advancement are important considerations for comprehensively deepening reform.

The process-based reform mode refers to the establishment and management of postgraduate education in colleges and universities, that is, postgraduate enrollment, postgraduate training, degree conferring, postgraduate management, etc., to promote the comprehensive reform of postgraduate education through the reform of postgraduate education, to realize the reform of postgraduate education in colleges and universities development goals. The key to this model is to take all management links of graduate education in universities as the reform objects, so it is called a process reform model. To avoid repeated investment and waste, it is possible to expand its functions based on the existing postgraduate teaching management system platform, so that the system can gradually collect and analyze various data in the postgraduate education management process and based on the collection The effect of data analysis on teaching and learning of graduate courses. Applying big data technology to education and teaching management is an effective way to accelerate the modernization of my country's higher education.

To realize the modernization of higher education, all colleges and universities have invested funds in the construction of graduate teaching management systems in recent years, and the developed system has greatly facilitated the daily teaching management of graduate students. However, most teaching management systems have a single function, which is far from satisfying the effective use of big educational data. To avoid repeated investment and waste, it is possible to expand its functions based on the existing postgraduate teaching management system platform, so that the system can gradually collect and analyze various data in the postgraduate education management process. From a perspective There is a logical sequence relationship among the three basic issues of the comprehensive reform of postgraduate education, that is, to restructure the relevant subjects of postgraduate education through the innovation of the postgraduate training model, then to define the responsibilities and rights of different subjects through the construction of the postgraduate education quality assurance system, and finally to postgraduate education. The reform of the training mechanism establishes a management mechanism for the effective operation of postgraduate education, thus forming a complete chain of postgraduate education.

In terms of the core content of the reform, systemic system reform and mechanism innovation system design will be carried out around the three groups of graduate students, graduate tutors, and graduate managers, focusing on stimulating the enthusiasm of the three groups. The key to comprehensive reform is to reform "production relations", that is, to reform the existing system and mechanism around the different value orientations and interest demands of different subjects, and to form a reform force. From the perspective of the inherent connotation of the reform, this reform model can better reflect the essence and essence of the reform. In the context of the era of big data, the massive data generated during the postgraduate education and teaching process not only provides new technologies for quantitative research on education and teaching methods, but also provides new guarantees for the modernization of my country's higher education technically.

Departments such as graduate schools, finance offices, personnel offices, state-owned assets offices, and academic affairs offices in colleges and universities should strengthen cooperation and ensure that the postgraduate training scholarships proposed by the reform of the postgraduate training mechanism can be fully implemented in accordance with the requirements of the central and provincial local governments. Ensure that the special construction funds for postgraduate education can increase to provide important financial guarantees for the comprehensive reform of postgraduate education. In terms of performance evaluation and other aspects, the evaluation and appointment system for doctoral supervisors will be cancelled, and the delayed retirement system for doctoral supervisors will be cancelled.

3. CONCLUSION

Aiming at the reform of postgraduate course education and teaching, through the systematic investigation of the transformation of postgraduate education and teaching mode under the environment of big data, the researchers think that : big data technology provides an opportunity of the times for realizing the modernization of my country's postgraduate education. Higher education management departments and higher education practitioners should seize this opportunity, based on my country's national conditions and the actual situation of postgraduate education, establish an open and inclusive big data thinking and innovative Personalized educational thinking, reforming traditional teaching methods, to improve the teaching quality of postgraduate education in my country. This is an effective path to realize the modernization goal of postgraduate education in our country.

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Research on Teaching Reform and Innovation of Law Course in the Context of Big Data

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Abstract: The wide application of legal big data has created new era opportunities for the development of the legal industry, and put forward higher requirements for the professional quality of legal personnel. At the current stage in China, the traditional law case teaching mode has some shortcomings in terms of teachers, teaching thinking, teaching methods, etc., which can no longer meet the training requirements of the big data era for compound legal talents. Propose more modern reform plans for traditional education models. This article briefly discusses the problems existing in the current teaching mode of law in universities and proposes corresponding solutions, aiming to help universities improve students' learning efficiency, improve teaching quality, and cultivate legal talents.

Keywords: Teaching Reform, Law Course, Big data

1. INTRODUCTION

Since entering the 21st century, with the wide application of computers and the Internet, the data information generated and created by human beings has exploded, and the era of big data has quietly arrived. In the context of big data, the society has put forward higher requirements for legal talents. Legal practitioners should not only be proficient in legal professional knowledge, but also be able to proficiently use modern information technology for data retrieval and analysis and find the best solution to problems in the intersection of law and technology. The main purpose of law majors in universities is to provide high-quality talents for the social and judicial departments. However, with the changes in modern judicial content, judicial environment, and work methods, the content of law teaching will inevitably change accordingly.

At present, the content of law teaching in colleges and universities is obviously not in line with the actual life, which will lead to the failure of law courses to correctly connect with the judicial work. The lack of big data analysis of laws and regulations, judicial big data analysis, big data and artificial intelligence legal issues thematic research and other courses will lead to insufficient ability of students, unable to provide a favorable basis for judicial work, and unable to actively innovate judicial work methods, improve work quality and efficiency.

Clear teaching objectives are the core of any subject education, and the same applies to legal education. In practical teaching of law, teachers should develop targeted teaching plans and objectives for students, allowing them to move forward correctly according to the teacher's guidance, thereby controlling the focus of learning and achieving results in practical learning. In addition, there are many subcategories in the law major, and clear teaching objectives can help students find their own positioning and truly cultivate legal talents that meet different needs. The basic goal of legal practice education is to cultivate qualified legal talents. From a global perspective, there is generally consistency in the training objectives of legal talents among different countries, but their values are different.

The promotion of legal practice teaching requires the participation of many teachers who have both profound theoretical foundation and rich practical experience. At present, schools generally lack such a teacher team, resulting in the phenomenon of one teacher leading dozens of students in legal practice teaching. Students cannot receive comprehensive or targeted guidance, and the teaching effect is significantly reduced. There are two main reasons for this sticking point: firstly, schools often value their academic research level while neglecting their practical operation ability when recruiting and evaluating teachers. The characteristic of classic case teaching method is that teachers supplement theoretical teaching with specific cases to cultivate students' ability to apply and transform knowledge. In traditional legal case teaching in China, influenced by long-term "cramming" teaching, students often only need to passively accept the cases compiled by the teacher.

The cases selected by teachers often come from textbooks or are simplified based on real-life cases encountered in their own practice. For many law teachers in universities, it is most troublesome to highlight the teaching focus and exam difficulties of the subject in their daily teaching process. This knowledge are basically an extremely important part of the exam and social practice process. However, it is not easy to impart all these knowledge points to students and make them fully understand them, If Big data model, a new teaching model, is introduced at this time, and students' memory points are stimulated by examples and imitation, this difficulty will.

2. THE PROPOSED METHODOLOGY

2.1 Existing problems in the teaching mode of law in universities

The teaching mode has an important impact on the effectiveness of teaching, and it is necessary to continuously innovate the practical teaching mode to fully utilize the effectiveness of law major teaching. The call for legal teaching reform has always been high, and in recent years, various reform plans have also been adopted in legal practice teaching. However, most of the reform targets are teachers, who push forward the reform plan according to the individual's free play and cannot fundamentally achieve the role of teaching reform. In terms of legal education reform work, it is necessary to clarify the different levels of legal students and systematically classify them according to

different levels of students, to promote targeted reform planning. For example, gradually integrating case teaching into traditional teaching of legal knowledge and increasing students' understanding and understanding through practical case scenarios.

At the same time, in teaching, teachers also need to transform the single classroom teaching and combine the classroom with the court situation to strengthen the effectiveness of practical teaching. Traditional legal practice teaching is generally limited to school teaching in the form of evaluating cases in classroom teaching, organizing case analysis, Moot court, etc., while off campus legal practice is often a mere formality.

Political and legal schools and legal practice departments work closely together to build a law major, which is one of the few legal education programs in China. As a result, there is a dilemma in legal education in China. On the one hand, legal practice departments do not understand the current situation of legal education in China and are unable to communicate and discuss the urgent problems that need to be solved in practice with law school (department) teachers and students, to solve them in a timely manner.

With the development of artificial intelligence and the progress of educational concepts, the demand for personalized learning among contemporary college students is becoming increasingly strong, and personalized learning has become a new trend in today's learning. In the era of big data, "the traditional teaching model in the past no longer meets the needs of education, and the learning in the new era should be learner centered and technology driven personalized learning, which is an inevitable product of the progress of the times and educational reform". As the core of cultivating professional judicial personnel, college law specialty should also show the application, practice and other characteristics of the subjects studied.

The traditional practice of legal education is basically conducted in the classroom, with a single content and form, and a simple process that is only for practical purposes and cannot be integrated with actual judicial work, resulting in daily course teaching not being in line with actual work, and student internships being difficult. Optimizing the teaching evaluation system is an important measure to improve the effectiveness of practical teaching reform. Teaching evaluation can identify problems in reform and innovation and improve and optimize them accordingly. In the practical teaching process, teaching evaluation should start from cultivating people's practical abilities to promote the evaluation work, and evaluate students' theoretical foundation, practical effects, and curriculum settings from multiple aspects.

2.2 Implementation mode of law teaching mode in colleges and universities based on big data

Thus, the educational function of legal practice education and the function of serving society can be simultaneously realized. Teaching evaluation work should focus on the evaluation of teaching skills, identify the value and significance of innovative teaching skills, and highlight the scientific and rational nature of the evaluation. In addition, advanced teaching evaluation methods from abroad can be introduced in teaching evaluation methods, and a comprehensive analysis can be conducted based on the current situation of legal practice teaching in China to achieve the significance and value of evaluation innovation. Internships for domestic law students are generally arranged near graduation, called graduation internships. However, due to the severe employment situation in recent years, students are mostly busy preparing for many exams such as judicial exams and civil service exams when they are about to graduate, there is no time to attend to graduation internships, some are just looking for a company to stamp a seal on.

In view of this, the author believes that based on objective needs, legal internships should not be arranged at the time of graduation, but should be appropriately placed in advance, such as during the second or third year of college. Secondly, the legal internship period should be appropriately extended. Courses such as "legal Document retrieval", "Legal clinic and legal aid", and "legal negotiation" are offered. This kind of course is an integral part of Legal clinic education in common law countries in terms of positioning and aims to cultivate students' professional ability to work in legal negotiation. The teaching goal of such courses is to improve students' legal application and legal negotiation ability through experimental teaching methods, cultivate students' high-level interpersonal skills and legal professional ethics, comply with the requirements of the era of big data, and exercise students' legal document retrieval skills.

Law teachers in universities can also develop educational methods for online teaching, establish simulation practice platforms, online simulation practice work, and use network virtual contexts to build a series of virtual work systems that match the actual judicial work environment, processes, content, and methods. Combined with the theoretical education foundation learned offline, it can be seen from the above, the premise of running a good clinical law education is that there should be a team of teachers with profound theoretical foundation and rich practical experience in colleges and universities. Without such a team of teachers, running a Legal clinic is like talking on paper. Due to various reasons, universities generally lack such teaching teams.

In traditional legal case teaching, Chinese universities generally follow the model of "teaching theoretical principles first and then analyzing a certain case", that is, abstract first and then specific. Although this teaching mode is more in line with students' cognitive patterns, it can also lead to some teaching teachers' fixed thinking, fixed case selection and explanation forms, and inflexible teaching methods. Some teachers' technical means used in the classroom are also relatively backward, and the utilization of new media and new technology is not high, which does not keep up with the rapid development of the big data era. In response to these problems, East China University of Technology optimized the case teaching mode and added the following teaching methods to match the reform of the case teaching mode.

3. CONCLUSION

In the face of the opportunities and challenges brought by the era of big data, China's legal education also meets the impetus and requirements of reform. As an important teaching method in China's legal education, the case teaching model of law should promptly follow the development needs of the times, innovate talent cultivation models in aspects such as training concepts, training plans, teacher strength, and teaching methods, and improve the effectiveness of case teaching. The Big data-based teaching method is the best choice to solve the existing law education in colleges and universities. It also requires the continuous efforts of relevant law educators, so that judicial work, as an indispensable part of social

livelihood, can continue to work for the well-being of the masses of the people.

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Practical Reflection on Enhancing Cultural Confidence in College English Education

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Abstract: Emphasizing cultural teaching in foreign language teaching has become a consensus in foreign language education in universities. In college English teaching, teachers should not only infiltrate Western culture into students, but also better inject Chinese cultural elements, cultivate students' sense of national cultural pride, and enhance their cultural confidence. As a compulsory basic discipline with the highest number of students and a significant credit ratio, college English teaching not only imparts language skills, but also shoulders the mission of quality education and cultural education. In the process of understanding the culture of the English language family, we have a clear understanding of the differences between Chinese and English in terms of language expression symbols, language translation, literature, ideas, and other aspects. This cultural comparison implicit in English education runs through the entire process of English education, playing a positive role in enhancing national cultural confidence.

Keywords: Practical Reflection, Cultural Confidence, English Education

1. INTRODUCTION

Culture is the bloodline of a nation and the spiritual home of the people. Culture is also a powerful driving force for the development and progress of a country or a nation. Paying attention to the cultural confidence education of college students to ensure that they can stand in the new era under the background and perspective of globalization, take on the responsibility of inheriting and promoting Chinese culture, and building socialist culture with a more proactive and conscious attitude, is a crucial task and urgent need for higher education.

While enhancing China's cultural soft power, it also enables the country to take the initiative in fierce international competition. Cultural confidence is not only related to the inheritance and development of culture, but also plays an irreplaceable and important role in the long-term development of a country's society and economy. Contemporary college students, as the hope of the country and the nation, the future builders, and successors of the motherland, cultivate their good cultural awareness and patriotism, and form a high level of cultural confidence. Driven by internal spiritual forces, they become inheritors and promoters of excellent Chinese culture, which has profound significance for the contemporary inheritance and external dissemination of Chinese culture. Fernand Brodale said, "It is precisely because of culture that humans have truly lived a human life.

Language is the foundation of cultural production and a significant representative symbol of culture. The fundamental job that students majoring in English language will engage in in in the future, whether it is translation in writing or dealing with people from English speaking countries, is not the exchange of spoken language, but the exchange of culture. It has been proven that it is quite difficult for a person to enter another cultural system. When dealing with cultures that are different from our own, we unconsciously use our own perspectives and perspectives to measure other ethnic groups, inevitably leading to misunderstandings.

To avoid the difficulties caused by cultural differences, there is only one way to go: to integrate into this culture as much as possible. To understand the current situation of cultural confidence among college students, this study selected freshmen and sophomores from the author's school as the research subjects and conducted questionnaire surveys and interviews with them. The survey includes basic personal information of college students, their attitudes towards Chinese and Western cultures, the infiltration of foreign cultures in English classrooms, their understanding of traditional Chinese culture, their participation in cultural activities and practices, and suggestions for cultivating cultural confidence. A total of 282 valid questionnaires were collected this time. The survey results are as follows: During the English learning process, more than half of the students (56.7%) believe that they not only learn language knowledge and skills, but also pay attention to the accumulation and absorption of Western cultural knowledge. 41.5% of students are very interested in Chinese culture, while 44.3% are more interested. It is a common problem that the path of cultivating cultural confidence in college English teaching has not received high attention from all levels.

2. THE PROPOSED METHODOLOGY

2.1 Reflections and Suggestions on the Cultivation Path of Cultural Confidence in Strengthening College English Teaching

In college English teaching, the cultivation of cultural confidence in various universities can be said to be without textbooks, models, effective actions, and standard requirements. Not receiving enough attention, there are still many gaps at the organizational, teacher, textbook, and teaching levels. We must make every effort to solve it with a correct understanding. College English, as a basic course of higher education, embodies the remarkable characteristics of wide radiation, large number of students, progressiveness and practicality, and its importance is self-evident. However, with the continuous adjustment of China's market economy structure, there are significant differences in the development direction and positioning of English courses among major universities in the new economic environment.

To further enhance the effectiveness of college English education and achieve more idealized talent cultivation results, universities focus on modern cultural education, with

insufficient emphasis on the integration of traditional culture. As a result, the integration of traditional culture and college English education is not close enough, and the cultivation of cultural confidence among college students is hindered. Language is the most prominent external symbol for the independent existence of a nation, and it is the most core and important part of national culture. It goes deep into all aspects of a nation's life, from observable customs and lifestyles to internal thinking characteristics. Like a bright and discernible mirror, it reflects the unique cultural content and corresponding characteristics of each ethnic group.

There is also the "Cross Cultural Communication Course", which provides students with cross-cultural education, helps them understand the differences in worldviews, values, ways of thinking, and other aspects between China and foreign countries, cultivates students' cross-cultural awareness, and improves their social language and cross-cultural communication abilities. Through course learning, students can enrich their knowledge of Chinese and foreign cultures, cultivate their awareness of cultural differences between China and foreign countries, deepen their understanding of their own culture, cultivate their cultural appreciation, and enhance their cultural thinking ability. To enhance students' interest, they can also take cultural courses such as Chinese drama, calligraphy, martial arts, and appreciation of famous works. The insufficient mastery of the advanced culture of one's own country and nation by the college English teaching team leads to the common occurrence of Chinese cultural aphasia in the teaching language.

In the teaching process, the cultural characteristics and achievements of English-speaking countries are overly emphasized, while the guidance of college students' emotional, psychological, and ideological identification with their own national culture is ignored. This is one of the most direct and crucial links that affect the path of cultural confidence cultivation in college English teaching, and solving this problem is urgent. Understanding the rich and excellent cultural connotations and being influenced by subtle thoughts can help college students form a good cultural awareness and cultivation, and then consciously practice traditional culture in their future growth and development. Therefore, based on college English education courses, cultivating students' cultural confidence can better leverage the humanistic value of English courses, make up for the current situation of mother tongue cultural aphasia in traditional classroom teaching, and enable college students to understand local traditional culture in English knowledge learning, correctly understand the development process and brilliant achievements of China's excellent traditional culture, Gradually cultivate contemporary college students into cross-cultural communication talents with high cultural confidence and cultivation.

2.2 The Necessity of Cultivating Cultural Confidence in College English Education

The cultural confidence brought by the differences in language expression symbols. Unlike English phonetic characters, Chinese characters are one of the few ideographic characters in the world, and their biggest advantage lies in the special connection between their form and meaning. Mountains, rivers, sun, and moon are originally taken from the images of natural things themselves. Flowers, birds, fish, and insects all retain the unique characteristics of living things, which gives Chinese character learning rich associativity. Therefore, Chinese character learning does not stop at the simple level of language symbols but delves into the thinking and life wisdom of ancestors. Deepen our understanding of China's vast and profound traditional culture. On the other hand, we should actively carry out rich and colorful campus cultural activities.

Schools should organize various extracurricular activities related to culture, such as campus cultural festivals, cultural clubs, cultural salons, etc., to encourage students to actively participate and make full use of the resources of international students in our school, strengthen mutual communication between Chinese and foreign students, promote and disseminate Chinese culture, let international students understand the excellent culture of the Chinese nation, and promote Chinese culture to the world. In terms of content, we should take the Core Socialist Values as the foundation of the overall construction, place them in the core position and make them the soul and main line throughout. We should regard excellent traditional cultural education as the key and focus of education content, and combine it with self-cultivation, academic pursuits, standing up, acting, and patriotism. Through the implantation of ideological and political education, education of national sentiment, social responsibility education, and humanistic cultivation education, we should expand and extend moral education as the educational content.

These targeted cultural education courses can enable students to form correct perspectives, values, worldviews, and thinking patterns in the comparison of Chinese and Western cultures, and possess good cross-cultural communication awareness and ability, fully exerting the function and role of cultural education. Students can choose elective courses based on their own cultural learning interests to deepen their understanding and understanding of local culture. To effectively stimulate the interest of college students in cultural learning, universities should offer calligraphy, appreciation of red masterpieces, and elective cultural courses in Chinese drama, so that students can improve their critical thinking and appreciation abilities in cultural learning. In addition, organize a variety of cultural experience activities and campus cultural activities.

The difference in language expression symbols leads to differences in literary styles, which in turn brings cultural confidence. Compared with phonetic writing, the ideographic characteristics of Chinese characters have greatly enriched the literary style in China, most typically reflected in the conciseness and richness of language expression. Taking idioms as an example, each idiom has its own cultural background behind it, making the meaning conveyed by the language far greater than its literal meaning. Taking "learning to walk in Handan" as an example, literally, it means going to Handan, the capital city of Zhao, to learn the posture of walking, aiming to warn learners who have not learned what others have learned and have lost their original skills.

With the popularization and rapid development of the Internet, the values of college students have been affected and impacted. Faced with various incoming information, sometimes there is a lack of discernment and judgment, leading to blind admiration for foreign cultures and little attention to China's unique and excellent culture. Therefore, it is very necessary to help them resist the invasion and temptation of various foreign ideologies, improve their discernment ability, and help them establish correct values.

3. CONCLUSION

In the implementation process of rural revitalization strategy, rural tourism has become an important engine and

breakthrough for rural revitalization due to its industrial characteristics of "pulling the trigger and moving the whole body". This article deeply analyzes the current situation and main problems of rural tourism development in Jiyuan. Small scale rural tourism operators do not have effective marketing skills and resources and may require long-term government subsidies to maintain the social effects brought by rural tourism. Therefore, it is necessary to design more effective public policies and financial mechanisms to support rural development and tourism.

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Design and Implementation of Control System for Underwater Robot under Artificial Intelligence Background

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Abstract: The underwater robot based on artificial intelligence requires small size, stable motion, and its control system requires low power consumption, reliable performance, and easy operation. This article uses STM32F407 as the main control unit to build the underwater robot motion control system and designs the software structure and data collection process for the entire system. The thruster is tested for data, and the ROV spatial motion coordinate system is established. Then, in response to the characteristics of multiple control nodes, large communication volume, and strong real-time performance of the flexible long fin biomimetic thruster, the internal communication network of the control system was established using a field bus. Finally, the details of the software and hardware implementation of the control system were introduced. The experimental results showed that the control system had good control performance.

Keywords: Design and Implementation, Control System, Underwater Robot

1. INTRODUCTION

At present, major countries around the world are vigorously developing the marine industry. However, there are various uncertain and unknown factors in the ocean, and underwater robots have become the best tool to replace human operations due to their small size, high safety, deep operation depth, and long sailing time. It has been widely used in marine development. The underwater robot is a strong nonlinear system, and the motion of each degree of freedom is coupled with each other. In addition, the unknown gravity, buoyancy, and propeller installation of ROV under water bring difficulties to the design of controller. Establishing a universal, standardized, and practical mathematical model for ROV is a prerequisite for conducting control research on it. The overly complex mathematical model can lead to the complexity of the control system. The ROV designed in this article for underwater detection adopts an open-frame structure, equipped with sonar and attitude sensors.

The ROV can be controlled through cables on the shore console to complete actions such as forward, backward, upward, downward, left, and right turns. ROV structure, with a pressure chamber in the middle and buoyancy adjustment chambers on the left and right sides. The electronic cabin is used to install high and low frequency beacon machines, attitude sensors, and control circuits, and can also provide space for lithium batteries. The buoyancy chamber is used to provide buoyancy, which is composed of the center of gravity adjustment module and its drive control system. The center of gravity adjustment module controls the displacement direction and displacement amount of the counterweight by adjusting the steering and rotation amount of the drive motor, thus changing the axial displacement of the center of gravity of the whole carrier to generate pitching torque, thus controlling the pitching attitude of the carrier and Dynamic equilibrium along the axis.

The experimental model achieves self-stabilization of rolling degrees of freedom by configuring the center of gravity of the carrier downwards. The development purpose of this biomimetic underwater robot experimental model is to test the propulsion performance of a flexible long fin biomimetic thruster. Currently, only one flexible long fin biomimetic thruster is installed on the underside of the carrier. The thrust direction generated by the biomimetic thruster does not pass through the center of mass of the robot, which will generate an upward torque. In order to conduct stable navigation tests in water, a center of gravity control module is designed inside the robot to generate a balanced downward torque. In the future, multiple flexible long fin biomimetic thrusters will be installed on biomimetic underwater robots, making them capable of full attitude spatial motion. The underwater robot mainly consists of two parts: an underwater control platform and an underwater actuator. The underwater control platform is mainly a control box that can issue commands to the robot and receive status data from the underwater robot at different times.

The water control platform issues control commands, where the CAN bus serves as a bridge for information transmission between the control box and the underwater robot, and the underwater main controller controls each executing mechanism to make corresponding actions. The function of the heading control system is to maintain a constant heading angle of the underwater robot. The control loop uses a compass as a feedback sensor, and the deviation between the actual heading angle measured by the compass and the set heading angle is used as a closed-loop input, after PID adjustment, the voltage of the control motor is output, which is superimposed on the forward/backward and lateral navigation instructions issued by the upper computer operating mechanism. Then, after passing through the thrust distribution link and limiting amplitude, it is output to each DC motor, acting on the underwater robot carrier to maintain the set heading.

2. THE PROPOSED METHODOLOGY

2.1 Control system structure design

The lifting motion and depth control of ROV based on buoyancy regulation can reduce energy consumption. The diving and floating movements are achieved by adjusting the buoyancy on both sides to adjust the buoyancy of the cabin. ROV adopts dual propeller thrusters, arranged on both sides, parallel to the central axis. Through these two thrusters, both forward and backward thrust can be generated, as well as rotational torque, without coupling between the various degrees of freedom. The midpoint of the connecting line between two parallel thrusters should be in a straight line with the center of buoyancy and center of gravity to achieve balanced propulsion. A variable mass adjustment system is adopted in the buoyancy adjustment system, which adjusts the injection and discharge water volume of the left and right buoyancy tanks to reduce or increase the overall buoyancy, thereby generating a downward or upward force.

The control system controls the magnitude and direction of thrust, pitch moment, and yaw moment by adjusting the speed and direction of the biomimetic flexible long fin drive motor, the rotation amount and direction of the center of gravity adjustment module drive motor, and the deviation angle and direction of the "cross shaped" tail rudder fluid control surface. Therefore, the experimental model not only can achieve basic motion modes such as forward, reverse, braking, steering, and pitch maneuver, more complex three-dimensional motion modes can also be achieved through the combination control of the basic motion modes mentioned above. Traditional underwater robots are generally equipped with a propeller thruster and corresponding control driver. Each thruster only needs to control the speed to adjust the thrust size, with fewer control parameters and low communication data and real-time requirements. The control computer and each thruster controller can be achieved using traditional serial communication bus or parallel bus, without the need to expand the high-speed communication interface.

One or more flexible long fin biomimetic thrusters are configured in the biomimetic underwater robot, and each flexible long fin biomimetic thruster includes a set of more than control nodes. The motion parameters of each node require real-time control, which puts higher requirements on the speed, real-time performance, and interconnectivity of the communication network. New high-speed buses and extended communication interfaces must be adopted. The power part of the underwater robot is composed of thrusters installed in four different positions, which are controlled by corresponding drivers. Upon receiving control information, the drivers will drive the thrusters and make reasonable adjustments according to our requirements to drive the robot's motion. The embedded control system detects the motion status of the submarine through detection devices and transmits data to the surface computer through the network, The surface computer calculates the control amount based on predetermined tasks and preset algorithms, and then transmits the control amount to the submersible, which is then controlled by an embedded system to control the motion device of the submersible.

The main control module is the control center of the experimental model, connected to the remote-control receiver, the underlying drive control system of each functional module, the programmable instruction memory, and the carrier attitude sensor. Its function is to receive remote control commands, manage system operation modes and onboard electrical equipment, and forward control parameters of the underlying module. Based on the control system structure and communication network design, it is necessary to select equipment that meets various performance indicators to build the control hardware subsystem. Console computers do not require high hardware requirements and can use ordinary personal desktop computers or laptops.

2.2 Control Scheme and Simulation Analysis of Inclination and Diving Depth Based on Artificial Intelligence

The console computer is equipped with a drilling operating system, and the program is written with advice. It has a good interactive interface and main functions include start stop control, parameter setting, status detection, and data analysis. The attitude sensor adopts an inertial measurement unit, including a fiber optic gyroscope and a high-precision accelerometer, which can directly output two attitude angles of pitch and roll. The control computer is installed inside the underwater robot, requiring fast calculation speed, rich interfaces, small size, low energy consumption, and fast development. Therefore, an industrial computer with outstanding comprehensive performance is selected.

The stability of the underwater vehicle can be defined as the ability to return to the equilibrium state after being disturbed without any corrective action. In the design of the hardware scheme of the motion control system, the response speed of the overall scheme is related to the stability control of the underwater vehicle. Based on this, the motion control system of the underwater vehicle is designed. The motion control software of the underwater vehicle is written under the Real-time operating system QNX, Including network communication module, serial communication module, sensor data acquisition module, data management module, and controller module.

QNX operating system is characterized by good real-time performance. Multi process technology is used to manage the control algorithm, sensor information processing and thrust distribution algorithm under the framework of Real-time operating system, to improve the real-time performance and reliability of dynamic positioning control system. Construct a motor drive circuit with AT89C51 microcontroller as the core to construct a motor speed servo control circuit. The microcontroller retrieves the speed feedback signal and compares it with the target speed signal sent by the main control module through the CAN bus and uses a digital PID algorithm to achieve stable speed control. The pitch and balance control module also adopts the same drive control circuit structure as the propulsion control module.

The communication expansion card includes two bus interfaces and a router serial interface, installed with an operating system. The control computer program mainly includes flexible long fin fluctuation parameter control algorithm, attitude calculation, balance control, etc. The balance control node and each joint control node adopt a widely used series of microcontrollers, which communicate with the control computer through communication interface circuits and are connected to the motor drive controller through serial ports. Covering the main control unit, communication unit, detection unit, driving unit, and auxiliary unit in the entire motion control system, the entire system is controlled by the motion controller STM32F407 in the main control unit.

The CAN bus enables bidirectional communication between underwater robots and water control boxes, serving as a

bridge for information transmission; The detection modules in the entire control system include 9-axis attitude sensor, leakage detection sensor, water depth sensor, and temperature sensor. The expanded interfaces include wireless communication interfaces, GPS expansion reserved interfaces, sonar reserved interfaces, and gyroscope reserved interfaces, making the robot's functions more complete in the future; The power unit is a thruster and a center of gravity stepper motor installed in four different positions, which are respectively driven by an electric regulator and a stepper motor drive board. The auxiliary unit includes a camera, LED light, and laser. The LED light is controlled by the controller through a control board, and the relay controls the operation of the entire underwater motion control system.

3. CONCLUSION

This paper introduces the structure and sensor system of the open shelf underwater detection robot and designs the ROV Embedded controller based on the AT91RM9200 Processor design. The mathematical model of ROV is established, and the method of ROV vertical plane coordinated motion control is proposed. The underwater vehicle Embedded controller based on STM32F407 is designed, and the specific implementation methods of each functional module are introduced in the later research, algorithm control will be further carried out on underwater robots to improve their accuracy, and real-time underwater monitoring and control will be carried out after the robot's sealing is improved.

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Research on Innovative Thinking of Library Reader Service Work under the Background of the Information Age

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Abstract: As a place for storing human knowledge, libraries have the function of transmitting knowledge and spreading culture. The main function of grassroots libraries is to provide readers with book borrowing services, allowing them to understand relevant knowledge during the process of borrowing books. Due to the limited human resources in reader service in traditional libraries, one staff member can only serve one reader during the service process, making it difficult to meet the service needs of multiple readers at the same time, and it is difficult to effectively improve service efficiency and quality. Reader service is one of the important tasks of high school libraries. In the context of the information age, it is of great significance to explore the innovation of reader service in middle school libraries. A study was conducted on the reader service work of high school libraries, and strategies for innovative reader service in the context of the information age were proposed, to provide reference for relevant needs.

Keywords: Innovative Thinking, Library Reader, Information Age

1. INTRODUCTION

Grassroots libraries mainly undertake various functions in cultural dissemination, such as collecting, organizing, storing, and transmitting cultural materials. By developing and organizing cultural materials, they provide the necessary information resources for the grassroots masses. With the development and progress of modern technological networks, the function of libraries as carriers of cultural materials has gradually changed, shifting from traditional paper-based literature services to providing diverse carrier literature services. Libraries not only need to provide users with various paper-based materials, but also need to provide users with various professional literature, domestic and foreign works, historical and cultural works, and other electronic materials, according to the individual needs of users, Provide personalized reader services. The traditional library provides information services for readers, mainly reflected in the borrowing of library collections.

The increasing demand for knowledge in social production has led to fundamental changes in traditional mechanisms and operations, and library service methods have been severely impacted. Under networked conditions, the information of literature is mainly automatically completed by computer systems or readers on their own terminals. Therefore, library service work has shifted from mainly meeting the literature needs of book and journal proxy reading to meeting knowledge and information needs and expanding to network services.

Middle school libraries should actively utilize modern technology to provide maker services, stimulate students' innovation awareness and creativity, and improve the service function and social value of the library. Middle school libraries can introduce 3D printing technology based on the actual situation of their own library, set up maker spaces with different functions according to different themes, encourage middle school students to brainstorm based on extracurricular homework, and effectively stimulate their innovation awareness and creativity.

In the information age, the relationship between readers and libraries has also undergone a transformation. The reader services provided by libraries based on the Internet are more approachable, and their service methods are also more humane. When carrying out reader service work, libraries should strengthen the utilization of information technology and actively improve the existing infrastructure within the library to provide guarantees for the development of information services. Libraries should fully respect every reader, actively create a more personalized reading atmosphere for readers, and continuously improve the quality of library reader services.

Information technology transforms original paper information data into network information data, enabling readers to obtain data more efficiently and accurately, thereby effectively saving readers time searching for relevant information. In order to truly meet the needs of people in the information age for library reading services, libraries need to conduct a comprehensive analysis of the development of modern information technology when carrying out reader service work, explore the factors that affect the development of paper book carriers in libraries, timely convert paper information data into network data, store it through various storage carriers such as network CDs, and improve the convenience of information resource dissemination. The digitization of literature information resources and the networking of information transmission have highlighted the function of collecting and distributing library literature information resources.

2. THE PROPOSED METHODOLOGY

2.1 The Impact of the Development of the Information Age on Libraries

The collection, organization, and storage of information resources are stored and transmitted through bibliographic databases, online databases, e-books, and multimedia electronic literature that integrates text, sound, animation, and images. There are abundant and diverse digital resources. In a high-speed network transmission environment, making full

use of computer network information technology, readers can query multiple distributed information resources at any place and time, greatly shortening the transmission time of information, narrowing the distance between information providers and users, and improving the utilization rate of information resources. Under the influence of mobile Internet, the middle school library adapts to the changes of user needs and provides mobile information services by using the WeChat official account platform. WeChat has the advantages of convenient use, simple operation, large user group and ready access. Its WeChat official account platform has rich functions, which can not only push messages through official account, but also embed the library's OPAC system and digital resources in official account to achieve users' mobile information acquisition. Middle school libraries should actively utilize WeChat to provide users with more convenient mobile information services.

The effective combination of reader service work and information technology can help libraries to achieve accurate positioning of reader needs. In the information age, when carrying out reader service work, libraries need to accurately locate the needs of readers themselves, provide more effective services based on their actual needs, help readers better solve various problems they encounter during the reading process, meet their needs, and thus maximize the security of information services and the effectiveness of reader service work.

In the daily operation process of traditional libraries, they mainly rely on manual sorting and classification of books. Library staff need to perform a lot of mechanical and cumbersome operations, such as manually encoding, classifying, and returning books to shelves. Staff need to understand the placement of books in the library and spend a lot of time searching for the corresponding positions of relevant books, which is tedious, High workload and low work efficiency. The development of information technology has changed the basic working methods of libraries. Library staff can store a large amount of information data on the network without worrying about losing or not being able to return books. Libraries need to provide services in a networked environment, and library professionals need to adapt to the modern library's reform service model, change traditional service concepts, and improve service quality and information technology processing capabilities.

This requires library professionals to master network technology, multimedia technology, and information technology, master network construction and management, and master network platforms while mastering professional content. Only in this way can they effectively, scientifically, and reasonably organize information, select the best, most basic, and necessary literature information, and meet the needs of readers in a targeted manner. In terms of service methods, the development of reader service work often involves a lot of content and requires collaboration among multiple departments. However, due to their own library management philosophy and other reasons, some libraries only focus on book borrowing when carrying out reader service work, making it difficult to meet the diverse reading needs of readers and unable to adopt and implement the ideas proposed by readers.

2.2 The Characteristics and Necessity of Reader Service Work in the Information Age

However, some libraries still choose a single service method, which makes it difficult to effectively improve the quality of library reader service. If libraries want to adapt their reader service work to the development trend of the information environment and break through the limitations of offline libraries' paper book carriers on readers' reading space and conditions, they need to provide effective services for the vast number of readers in the online environment. Library staff need to adapt to the current development trend of library work, promote the development of libraries towards informatization and networking, and establish a service concept of informatization.

In the process of providing services to library readers, library staff should pay attention to the content and quality of the services provided, actively search for corresponding books for readers, and provide guided services for readers. The development of contemporary network information technology has brought about changes in people's lives. In the network environment, library services have shifted from traditional service models to modern information service models. In this model, libraries not only need to expand their service areas and enrich their service content, but also need to strengthen the depth of their services and provide high-quality services through active promotion and personalized services.

Firstly, by establishing intelligent information retrieval systems, professional information resource navigation, and developing information service systems, we provide readers with highly integrated, accurate, convenient, and reliable information services, enabling them to easily and timely access the necessary resources at any time and place. Due to the era of information technology, any activity cannot be without promotion, so the promotion channels for promotional activities are also crucial for the success of a series of service activities in high school libraries.

Middle school libraries can fully utilize mobile internet technology to promote and promote activities and service content anytime and anywhere. For example, information such as "new book express", "good book recommendation", "borrowing ranking list", and "activity preview" can be posted on the WeChat Weibo platform of the school library. At the same time, teachers can also be invited to join this platform to provide students with corresponding reading guidance, forming a positive interaction between teachers and students online and offline. Library managers can invite domestic online library enterprises with successful experience to provide training to their staff, actively learning the construction models of online and mobile libraries, and enabling them to master basic network information operation methods.

Independently completing information input work in daily work, thereby improving the development level of the library, promoting its development towards informatization, networking, and convenience, and deepening the understanding of library staff about various new library development models and carriers. Secondly, adhering to the service concept of "people-oriented, service-oriented", we aim to achieve dynamic services that integrate the entire process from retrieval to obtaining information resources. To meet the specific needs of readers, libraries should fully utilize network information technology, actively carry out research on readers, timely identify needs, communicate information, and track

services. Comprehensively utilize various resources and information tools to provide solutions and strategies for specific readers' problems. Through a comprehensive and multi-level service approach, we have won readers' satisfaction with information needs and achieved the goal of high-quality service.

3. CONCLUSION

In the context of the development of modern information technology, library reader services should not only meet the technical needs of traditional offline services, but also meet the informationizable needs of modern network services. Traditional libraries have always been limited by the complexity and diversity of book materials, and in the process of serving readers, they often encounter problems such as slow service speed and limited-service scope, making it difficult to meet readers' needs for related reading activities. The development of information technology has driven the diversified transformation of contemporary people's reading habits, communication methods, and information search methods. We deeply understand the connotation of innovative work in reader service, always adhere to the goal of meeting reader needs, continuously enhance our management and service capabilities in the network environment and use modern information technology to provide high-level information resource services.

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Design of SaaS Platform for University Reader Service Information Resource Sharing Based on System Structure Data Computing

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Abstract:The effective sharing of high-quality teaching and scientific research resources in colleges and universities can realize the complementary advantages between colleges and universities, and improve the overall education and teaching quality of colleges and universities. Through the introduction of SaaS and a brief analysis of the resource sharing situation in domestic universities, the application service scenario of university teaching and scientific research resource sharing that can apply the SaaS idea is proposed. Compared with other solutions, it brings faster deployment time and lower deployment time. cost, and a more convenient user experience, and designed the architecture of a SaaS-based digital resource sharing platform for colleges and universities. At the same time, the sharing mechanism was studied, and suggestions for the standardization of shared resources were put forward.

Keywords: SaaS Platform, University Reader Service, Information Resource Sharing, System Structure Data Computing

1. INTRODUCTION

The Internet of Things (IoT) is a network that is expanded and extended on the basis of the Internet, and the “interconnection of all things” is carried out between things to realize the exchange and communication of information. The emergence of the Internet of Things [1], coupled with the sharp decline in the cost of data communication, and the emergence of various sensing technologies and smart devices, has accelerated the collection and application of data [2]. However, while facing a variety of specific industry applications and continuously generating massive real-time data, human resources refer to the level of teachers and managers owned by the school [3].

Many scholars at home and abroad have used different methods to discuss the effective allocation and utilization of internal resources in colleges and universities. By establishing a multiple linear regression model [4], John F.Ryan proposed a resource optimal allocation strategy that university funds should be tilted towards teaching and scientific research. It only flows within the network [5], and some advantageous resources are often held in strong universities and ordinary universities. If you want to obtain high-quality resources, you need to spend expensive expenses [6]. Such low-level repeated construction results in a lot of waste of resources, and digital resources cannot be used optimally. Therefore, it is necessary to integrate digital resources, expand resource sharing, and study feasible university digital resources. The construction plan and sharing mechanism of the resource sharing platform are of great significance [7]. The Internet has undergone numerous reforms since its inception. We have experienced the traditional Internet era to the current mobile Internet era, and the convenience brought by this is that people can more conveniently obtain [8] the required multimedia information through various mobile devices [9]. Therefore, the desire for reading information is not only a simple book text, but extends to the multimedia resources related to the book content [10].

The sharing of educational resources in colleges and universities includes: hardware sharing, software sharing and teacher sharing [11], among which the multimedia teaching resources in colleges and universities belong to the category of software resources. Multimedia teaching means that in the teaching process [12], a certain teaching design is adopted, appropriate modern teaching media is used, and various media information acts on the teaching process to achieve the optimal teaching effect [13]. In order to break the information island, solve the problem of data sharing and exchange in the Internet of Things system, fully tap the value of data, and improve the utilization rate of data [14], this paper will propose a design scheme of data sharing and exchange platform based on the Internet of Things based on the framework of the Internet of Things [15], mainly to complete the Internet of Things. The functions of data collection, data exchange, data processing and data management can be used to manage and integrate data [16].

Sinuany-Stern et al. used the DAE method to build a model, and discussed the optimal allocation of educational resources by evaluating the operational efficiency of colleges and universities [17]. Breu and Raab used the DAE method to evaluate and analyze the relative efficiency of American public universities. In addition, Hooshang Izdai et al. used the Stochastic Frontier estimation method to study the optimal allocation of higher education [18] resources. Some domestic scholars have analyzed the information resource sharing behavior from economic theory. For the first time in China, Professor Ma Feicheng introduced the economic analysis system of interlibrary information resource sharing [19]. Ma Feicheng also used the group consumption model to analyze the efficiency of information resource sharing. He believed that information resource sharing is a mutually beneficial behavior, and information resources Sharing expands the information consumption ability of information users and increases information welfare [20].

The speed of dissemination of information using the Internet as a carrier is far beyond our understanding. The main source of information acquisition is the Internet. At this time, the traditional information carrier, books, is undergoing some changes closely following the times [21]. SMEs in colleges and universities are the places where book users are most concentrated and used most frequently. Therefore, it has become particularly important to innovate on the mobile Internet that keeps up with the times in the form of

contemporary book education. However [22], the author has investigated the relatively large and authoritative multimedia teaching resource network in China, and found that the downloads of multimedia teaching resources on the website are pitiful [23]. The reason why the download volume of resources is selected as a measurement data is that the download volume can be used as a reference for resources to be spread and shared. If you have experience in searching for multimedia teaching resources on relevant websites, you will find that [24].

2. THE PROPOSED METHODOLOGY

2.1 The System Structure Data Calculation

The overall architecture of the data sharing and exchange platform based on the Internet of Things is shown in Figure 1. The platform supports unified storage and unified management of distributed massive structured data and unstructured data, and provides flexible permission management and operation functions. The system provides a unified user management and authentication system. Follow the data service standard specification system formulated by the platform to obtain the corresponding data. The evaluation system of regional higher education resource allocation is proposed. Wu Shaoxin uses economic theory to discuss the expansion mechanism of domestic college resources.

More literatures put forward various solutions and application technologies from the technical point of view to the construction, development, management and safe use of campus network, which can make full use and sharing of knowledge resources such as teaching and scientific research, library and information in colleges and universities. , which greatly promotes the application of campus network in various colleges and universities. From the current research status, it can be seen that my country attaches great importance to the construction of digital resource sharing, and according to previous researches by scholars, it can be proved that digital resource sharing is economically feasible. However, the current research on digital resource sharing in my country mainly focuses on library and information resources. In terms of the sharing of information resources, there are few research literatures on how to make the digital resources of various colleges and universities can be used by other colleges and universities and the systematic research on the sharing mechanism. By binding the QR code with the book content, the corresponding content QR code is deployed in the relevant exercises, examples, extracurricular expansion and other sections of the book. The corresponding expansion resources of the content greatly expand the breadth and breadth of knowledge of the book itself.

2.2 The University Reader Service Information Resource Sharing Platform

Most scholars believe that SaaS software is a kind of software that is deployed on the host and accessed through the Internet. The basic form of SaaS software is as follows: the application software is uniformly deployed on the server of the SaaS provider, and the software user does not need to buy a software license, but can order the required application software services from the provider through the Internet by renting according to actual needs. Customers can order the required application software services from the manufacturer through the Internet according to their actual needs, pay the manufacturer according to the number and duration of the ordered services, and obtain the services and technical support provided by the manufacturer through the Internet. Its essence is to replace the investment in informatization construction through online leasing, and enjoy the convenience, efficiency and professional informatization services of information technology. It is in the highest position in the library management system and has the most complex functions.

Including the management and maintenance of book staff and books, the addition, modification, deletion and permission granting of ordinary staff in the library, and a macro view of the operating status of the entire library. Cloud computing uses distributed storage to store data, and uses redundant storage to save copies of the same data on multiple nodes, so that even if one of the nodes goes down due to natural disasters, power failures and other problems Otherwise, other nodes can immediately take over the task of the node and continue to run, which also ensures the high availability and reliability of data. The data collection subsystem consists of IoT data collection service, collection application service, integrated development designer, unified management platform, etc. The IoT service provides functions such as IoT device management, IoT node access authorization, IoT data transmission, and data heterogeneous management.

The collection application service provides authentication and authorization, monitoring and management interfaces, extension interfaces, data bridging, data adaptation, and data synchronization. In the SaaS model, users only need to pay a small amount of computer and network equipment costs.

2.3 The Saas Platform Design

The first level is custom SaaS. This model is basically the model of ASP in terms of maturity. Different client companies run their own customized application software on their own hosting space; the second level is configurable SaaS. In this mode, all application instances use the same software code, and the vendor provides detailed configuration choices and sufficient hardware and storage resources. Based on the consideration of factors such as the number of services provided by the platform, the number of users, and the cost of development and maintenance, this paper adopts the separate mode of shared database, that is, all customers use the same database, but each has a different set of data table combinations that exist in its separate database. within the mode.

This model achieves a certain balance between data sharing and isolation. In order to help users get better resource sharing services, this multimedia resource sharing cloud platform can integrate the existing rich multimedia teaching resources in colleges and universities and solve the problem of resource storage. , improve the efficiency of resource sharing. It can not only meet the user's resource service needs, but also meet the user's interactive communication needs and provide personalized resource push services. Therefore, this multimedia teaching resource cloud sharing platform mainly designs functional services from two aspects. With the development of modern education reform and the continuous application of computers in all aspects of teaching, there have been major innovations in teaching methods, teaching methods and teaching tools. Ordinary colleges and universities other than 985 and 211 colleges and universities with rich teaching and scientific research resources and other various higher education institutions use various means and forms to obtain rich and high-quality teaching and scientific research resources of various colleges and universities at a lower cost.

The various functions analyzed by the requirements of the book education QR code system are firstly that the system administrator needs to access the database, and needs to have

the operation authority to all the data and tables in the database. For editing, the first is to upload the book content in the system, and the second is to organize and summarize the book catalog. It is more inclined to be based on the type of service. Provide services such as development framework virtual machine, operating system and system software. 'Provide users with a complete platform (including complete and related plug-ins and other services), users can usually build their own applications on the platform.

3. CONCLUSIONS

The SaaS-based university teaching and scientific research resource sharing platform designed in this paper provides a free, flexible, open, inexpensive and mutually improving resource integration platform for the effective use of high-quality resources in universities and the construction of educational informatization. It expands the time and space of the real campus, and provides a material basis for college teachers and students to understand and master the school's professional settings and discipline construction in a timely manner. It is of certain significance for reducing material expenditures for colleges and universities and promoting resource sharing.

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Intelligent Auxiliary Framework for the Development Path of Modern Shipbuilding Enterprises Based on Intelligent Legal Information Retrieval System

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Abstract:The intelligent information retrieval system of traffic laws and regulations is introduced. The system adopts artificial intelligence technology and information push-pull technology, establishes an intelligent retrieval model based on memory network, and realizes intelligent fuzzy retrieval of information. The profits of shipping can be said to be huge, but at present, the global shipping market continues to decline, with excess production capacity and fierce market competition. Therefore, in order to revitalize shipbuilding and shipping, and speed up the structural adjustment of the shipping industry, we need to integrate the facts of the case. The described features propose an improved TextRank keyword extraction method, and the effectiveness of the improved algorithm in case keyword extraction is verified by experiments. The characteristics and technical application of intelligent ships are analyzed, and specific measures for intelligent research are put forward to provide reference for ship design and manufacturing industry personnel.

Keywords: Intelligent Auxiliary Framework, Modern Shipbuilding Enterprises, Intelligent Legal Information, Retrieval System

1. INTRODUCTION

For my country's shipbuilding industry, compared with the development of scientific and technological innovation in Western countries [1], it is still insufficient. Therefore, in order to improve the position of my country's shipping in the world market, it is necessary to increase the strength of scientific and technological innovation [2], and promote the design of my country's ships to complete the intelligent as soon as possible. The exploration of transformation has changed from "Made in China" to "Made in China". Among them, ship logistics transportation [3] is favored by many enterprises and merchants around the world due to its huge freight volume and efficient cargo guarantee, and has become the main mode of transportation in the international logistics market [4].

The intelligence level of ships has been optimized with the continuous improvement of computer information science, communication technology [5], sensor equipment and other technical levels, and the intelligence of the navigation, perception and other automated equipment and facilities installed inside it has been significantly improved [6]. At present, in the field of ship design and manufacturing, the traditional ship world plan model is too detailed, which is mainly reflected in the division of "professionalism," and the separation of "ship, machinery [7], electricity" and other majors. Moreover, within the same major, x is divided into several T species, systems, etc. [8] The design sequence is carried out according to the process of hull first, then turbine, and finally electrical; there are also the above shortcomings, and it is only full-text search. To search for laws related to transportation is not only time-consuming, but also not comprehensive and detailed [9].

In the face of increasing information and handling of traffic accidents, professionals urgently need an information retrieval system that can quickly [10], accurately and economically find all information on a subject. The design content is independent of each other, and the integrity is poor; the amount of information is single [11], and the comprehensiveness is low; the staffing of E is mainly based on "specialized" people. Intelligent retrieval is a new generation of retrieval technology combined with artificial intelligence technology [12]. The content of intelligent retrieval should be knowledge rather than information. His intelligent analysis of query conditions is mainly to extract the effective components of query conditions [13], including vocabulary and logical relationship. Using its own push software, it can automatically publish various pre-customized news to Internet users [14], economic, sports and other information. So that users don't have to click and roam blindly on the Internet, but they can read and prefetch purposefully like watching radio and television [15].

Nowadays, information retrieval has become a subject involving multi-domain knowledge, including natural language processing, statistics, machine learning and artificial intelligence [16], distributed computing and other fields. Many research and application fields involve key technologies of information retrieval, such as search engines, answer search in question answering systems [17]. The expected quotation of the shipowner is the planning and planning stage of the modern ship design. This stage is mainly used to determine the main working direction and performance of the ship [18], so as to complete the specific design direction of the modern ship and the improvement of the ship design [19]. Material welding, component segmentation and other high-risk links require construction workers to have strong technical skills and professionalism [20]. There are many types of ship manufacturing products, but the number of ships produced is small. It is convenient to prompt ship managers to deal with problems in time [21], ensure the safety and reliability of navigation, reduce the probability of failures during ship navigation, and reduce ship maintenance costs [22].

The extensive application of the IBS system and the continuous improvement of the level of intelligence can accelerate the research level of improving the automatic driving performance [23] of ships. In the project management system, the separation operation mode of "ship, machine and electricity" is adopted [24]. Under this system, each specialty

prepares an independent design plan, and the department of each specialty relies on the specialty department. Because the preparation department has put T as the focus on the professional, it is difficult to formulate a plan that can meet the overall design cycle [25]. Intelligent retrieval models understand the information content of documents and queries by applying domain knowledge. A semantic network knowledge model of each keyword (specialized term) is established. Users search by keywords, and the retrieved results are structured results based on semantics [26].

2. THE PROPOSED METHODOLOGY

2.1 The Intelligent Legal Information Retrieval System

This paper simulates the human thinking mode and establishes an associative memory feather model based on the semantic network for intelligent retrieval. The large-scale information has exceeded our imagination, but with the influx of a large amount of information, the problem is: the huge amount of information can sometimes make us at a loss. It becomes very difficult for a user to quickly and efficiently query the information he wants in large-scale information. Among them, forestry law is also a part of large-scale information. This system selects Apache and Tomcat as WEB containers. Apache itself can only interpret static pages such as HTML. It cannot interpret code like ASP, PHP, JSP, and Tomcat is a servlet container that is used to interpret code written in JavaServlet and JSP.

Intelligent retrieval models understand the information content of documents and queries by applying domain knowledge. Establish a semantic network knowledge model of each keyword (professional term). Users search by keywords, and the retrieved results are structured results based on semantics. This paper simulates the human thinking mode and establishes an associative memory feather model based on semantic network for intelligent retrieval. Through repeated research on the grammatical structure and semantic features of forestry laws, it is found that gerunds are very important in every legal provision. By summarizing, the verbs in each forestry legal clause are expanded in the form of synonyms and synonyms. Create a table for each user in China and the seven countries, and the structures of the two tables are the common fields of the original country. Remaining unchanged, all non-empty records of very used fields are merged into one field and put into a small table.

Named Entity Recognition (NER) refers to the automatic recognition by computers of person names, place names, institution names, proper nouns, and phrases such as dates, times, and quantities that have a certain meaning.

2.2 The Development Path of Modern Shipbuilding Enterprises

Among them, the most used relationship is the upper and lower relationship. The construction of the information storage model is to improve the retrieval efficiency and save the information that is of interest to advanced users. First, the advanced user retrieves the data through the advanced retrieval function, and the advanced user decides whether the retrieved information is of interest and whether to save it in his own information database. Memory Web is a model developed on the basis of Semantic Web. However, there is a big difference between them: the information expression ability of the Semantic Web is limited to the network itself, that is, knowledge can only be expressed through the connection between nodes and nodes; but the expressive ability of memory is much more than that.

The systematic nature of the intelligent ship, the so-called intelligent ship system, not only refers to the ship itself, but is the result of the ship’s shore-based integrated intelligent service system composed of many sub-systems. Shipbuilding is a long-term and complex production process. There are a wide variety of materials and components required for a ship, and shipbuilding companies need to introduce them to several companies. In this process, it takes a lot of money, material resources, manpower and time, and there may also be parts production for individual cooperative companies. Errors and delays in delivery time.

In the process of intelligent design and manufacture of ships, there are many hardware problems or technical problems, which are embodied in two aspects. On the one hand, the bandwidth of navigation-related satellites is insufficient, and it is not possible to achieve a high level of intelligent network coverage of ships due to technical or financial capabilities. It also includes systems for ship design, manufacturing, and operation. The new design model promotes the process of "cross-training" system, which further accelerates the transformation of "training" purpose into results. Expanding the knowledge of employees; improving the inter-professional technical level and comprehensive business ability of employees; at the same time, it also improves the overall design level of the company.

It shortens the time for employees to grow into comprehensive design talents with "one specialty and multiple abilities". The synergy of smart ships. The smart ship system includes many companies that can share information, such as ship design companies, manufacturing companies, and sales companies. Data is exchanged between these companies.

2.3 The Intelligent Auxiliary Framework for the Development Path of Modern Shipbuilding Enterprises

In 1995, the 6th Message Understanding Conference (MUC-6) formally proposed the task of named entity recognition. In this system, nodes represent legal concepts or terms (keywords, legal titles, legal terms, content explanations). Arcs represent similarity relationships. Generic and related relationships. As shown in Figure l. Figure 2 is an example of associative memory with the key word "suspending motor vehicle driver's license". Sememe is not an independent unit, there are many relationships between them, such as: hyponymous relationship, synonymous relationship, antonymous relationship, whole-part relationship, event-role relationship, etc. 16 kinds of relationships.

The shipbuilding industry is an intensive industry. In the process of manufacturing ships Shipbuilding companies will have frequent transactions with various companies, and some related companies are located in other provinces and cities, which increases production costs and time.

Provide stronger support for the development of shipbuilding. Ship manufacturing enterprises need to adapt to the current development model, and continuously improve the strength of the enterprise in the stage of rapid technological upgrading. The flexible employment system and reasonable personnel structure provide a material basis for the transformation of the design model. The company's employment system is different from that of state-owned enterprises, which fully reflects the principle of survival of the fittest. Putting the selection of

useful talents in the first place, breaking the outdated interpersonal network that restricts the development of advanced productive forces. Focus on the selection of excellent designers. Give full play to the advantages of high-tech, high-automation, and integration in intelligent manufacturing.

3. CONCLUSIONS

If modern ship logistics wants to occupy a place in international logistics and domestic logistics, it must objectively examine its own development drawbacks and defects, timely reform and innovate to find new development paths, and the internal structure and scoring and sorting implementation mechanism of Apache's open-source full-text search development library LUCENE, and make an improved scoring calculation method. Finally, this paper develops an online legal retrieval system based on B/S architecture. It abandons the traditional management mode. In order to solve the obstacles encountered in the process of ship design and manufacture, and to improve the reliability of the system itself.

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Current Situation and Challenges of Chinese Enterprises Investing in African Manufacturing Industry

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Abstract: Under the background of China's "One Belt, One Road" initiative and China-Africa building a "comprehensive strategic partnership", Chinese private enterprises' cluster investment in Africa has broad prospects and great potential, which will contribute to mutual benefit and win-win results for both China and Africa. The article expounds the progress of Chinese private enterprises' cluster investment in Africa, analyzes the self-challenges faced by enterprises in cluster investment in Africa, and the Forum on China-Africa Cooperation and the "Belt and Road" initiative provide government support for private enterprises to invest in Africa. At the same time, it discusses the challenges faced by Chinese private enterprises in investing in Africa in terms of politics and administration, economy, labor quality, international competition, and the quality of enterprises themselves. Finally, related suggestions are put forward from the government level and enterprise level.

Keywords: Current Situation, Chinese Enterprises, African Manufacturing Industry

1. INTRODUCTION

In 2015, the African Union released the "Agenda 2063" and its first ten-year plan, clearly proposing a strategic vision for accelerating industrialization, and taking the realization of infrastructure interconnection and African industrialization as the strategic goal of the region's development in the next few decades. In this context, the clustered investment of Chinese private enterprises in Africa has gradually become a new model to boost Africa's industrialization. How to firmly grasp the opportunity, condense Chinese wisdom and African wisdom, calmly deal with various challenges, and make the pace of Chinese private enterprises' cluster investment in Africa more solid has become the focus of academic circles. The clustered investment of Chinese private enterprises in Africa conforms to the law of international industrial transfer and is conducive to the deep integration of China-Africa industrial chains.

From the perspective of strategic value, it can not only strengthen the effective cooperation between Chinese and African enterprises, give full play to the effect of resource sharing, and enhance the industrial competitiveness, but also plays a role in the smooth implementation of the "going out" strategy of Chinese enterprises under the new situation and the promotion of my country's economic upgrading and upgrading. important and far-reaching significance. In the report of the 18th National Congress of the Communist Party of China that just passed, it was proposed to "comprehensively improve the level of open economy, accelerate the pace of going out, and implement a more proactive opening strategy", which indicates that in the new era, China will still vigorously promote and deepen the "going out" strategy.

Subsequently, notices such as "regulations on regulating competitive behavior in foreign investment and cooperation fields" and "guidelines for environmental protection of foreign investment" were issued successively. We are in an unprecedented period of opportunity. Infrastructure construction is the biggest highlight of China's investment and financing in Africa, and China has become an important source of investment and financing for infrastructure construction in Africa. By the end of 2017, China had financed and built at least 6,200 kilometers of railways, 6,500 kilometers of roads, 20 ports and 20 bridges, more than 80 power stations, 200 schools and 80 stadiums in Africa.

Chinese enterprises investing in African manufacturing industries have basically experienced three growth processes: starting from the development of trade in manufactured products, to the localization of production and manufacturing, and then to enterprise cooperation and the construction of industrial parks. Since the cost and risk of an enterprise investing in Africa alone are too high, the enterprise often joins with another or more enterprises to jointly invest in African manufacturing. The way of cooperation between enterprises has become an important way for Chinese enterprises to invest in African manufacturing. Due to the cluster effect generated by the clustering of enterprises, industrial parks have emerged as the times require, and it will be a new trend for Chinese enterprises to invest in African manufacturing in the future. In the early practice of private enterprises investing in Africa, the participation of local enterprises in the African host country was ignored, that is, the bilateral alliance between Chinese private enterprises and local African enterprises was insufficient.

It is difficult to integrate into the local regional economic network of Africa only relying on the unilateral cluster investment model. In this context, the bilateral alliance model of strategic alliance between Chinese private enterprises and African local enterprises is gradually emerging. Africans call it "cooperative marriage" model. This approach can effectively improve the technological progress and overall growth of local African companies and promote the independent growth of local regional economies in Africa. This is also the biggest difference between the Chinese model and the Western European and American predatory models. This model of aid to Africa is a distant echo of hope and ideals between Asian and African countries for the future, and it is a kind of mutual assistance with a simple goal and a common heart.

2. THE PROPOSED METHODOLOGY

2.1 The Progress of Chinese Private Enterprises' Cluster Investment in Africa

The Chinese government should unite with African countries, stand on the same front, and jointly resist the damage to the image of China's investment in Africa by Western developed countries. On the one hand, the two governments should refute and criticize the inappropriate remarks made by Western countries through the media and based on facts; on the other hand, they should increase publicity efforts and establish a good image. At the same time, problems encountered are negotiated and resolved to avoid expansion. at a certain risk. Local conflicts and terrorism still exist. In many countries, riots often occur during the process of government change. With the change of government, relevant policies will also change, which may cause huge losses to investment projects.

In addition, according to reports from many employees of enterprises in Africa, some government officials in Africa have low efficiency and serious corruption, and they extort bribes from Chinese enterprises and employees. In some countries, the legal system is not perfect, or the law is not followed, and the social security is relatively poor, which restricts the long-term development of Chinese private enterprises in Africa. Africa is rich in oil, gas, and mineral resources, which are the main source of foreign exchange earnings for most African countries. China is the world's largest importer and consumer of commodities. China's investment in African oil and mineral resources will help drive the production and export of bulk commodities in African countries and promote the economic development of both sides.

Chinese enterprises give full play to their overall advantages in oil and gas investment, engineering services, equipment manufacturing and international trade, implement a "whole industry" investment and operation model integrating upstream and downstream, and provide countries such as Sudan, South Sudan, Chad and Niger with oil and gas exploration services The "package solution" helps these countries establish an oil industry system. The investment flow of Chinese enterprises to Africa has grown rapidly, and the investment fields are relatively concentrated. The 2018 Statistical Bulletin of China's Foreign Investment pointed out that China's direct investment flow in Africa reached US$5.39 billion, an increase of 31.5% over the previous year, accounting for 3.8% of China's total foreign direct investment flow in 2018. An annual increase of 1.2%, mainly into Congo, South Africa, Mozambique, Zambia, Ethiopia, Angola, Kenya, and other countries. It involves many fields such as agriculture, construction industry, mineral natural resources, manufacturing industry and infrastructure.

As of the end of 2018, the stock of China's direct investment in Africa has exceeded US$46.1 billion, and the stock of direct investment in South Africa has reached US$6.53 billion, ranking first among African countries. In the early practice of private enterprises investing in Africa, they mainly focused on low-end value chain fields such as local production lines, raw material procurement, and product manufacturing in Africa. Due to the imperfect market economy in Africa and the lack of industrial supporting facilities, the profit margin of products is low. Take the Wenzhou shoe industry cluster investing in Africa as an example. Shoemaking is a traditional industry in Wenzhou with a history of more than 800 years.

At present, the Wenzhou shoe industry is facing a series of problems, such as rising raw material costs, rising labor costs, the impact of foreign competitors, and the migration of consumers' preferences to high-end products. In this context, some shoe-making companies have begun to implement the strategy of going out, among which cluster investment in Africa is more typical. Chinese enterprises should enhance their social responsibilities, adjust their business strategies, abide by local laws and regulations, standardize investment behavior, respect local social customs, and refrain from acts that damage the country's image because of short-term interests. Enterprises should absorb more local people for employment, strengthen environmental protection awareness, improve local infrastructure, benefit local people, help them improve their independent development capabilities, and drive common development.

2.2 The Challenges Faced by Chinese Enterprises Investing in African Manufacturing Industry

The financial support and security system is not perfect. This has led to a very limited scale of investment by private enterprises in Africa. Domestic banks and other financial institutions do not have the power to supervise the overseas assets of enterprises. As a result, banks cannot fully understand the operating conditions of enterprises investing in Africa, so they are unwilling to provide funds or guarantees for these enterprises. The African financial market is also cautious about the financing needs of Chinese private enterprises. At the same time, the financial market system in Africa is not perfect, and it is difficult to effectively meet the financing needs of Chinese private enterprises. In addition to undertaking many supporting construction projects in major infrastructure projects, Chinese companies also invest extensively in development projects such as commercial real estate, residential complexes, trade cities and hotels in Africa. Chinese-funded enterprises have very successful investment and construction projects in Angola, Rwanda, Kenya, Guinea, Nigeria, and Egypt.

As the African economy continues to develop and the size of the middle class continues to expand, more and more Chinese-funded enterprises will invest in real estate projects such as housing, hotels, and urban development. International investment has high requirements for the financial strength of enterprises, and 90% of Chinese enterprises investing in African manufacturing industries are private enterprises. Insufficient financial strength is a common problem of private enterprises. Overseas manufacturing investment mainly involves enterprises leasing factories, warehouses, establishing production lines, logistics systems, sales channels, and sales networks, etc., and also involves research and development of production technologies. All these economic activities require financial support, and enterprises with insufficient financial strength will not be able to support these cost expenditures, which will affect the production, operation, and investment of enterprises.

With the continuous improvement of the African economy, the investment fields of Chinese private enterprises have gradually expanded to emerging fields such as modern service industry, new energy development, and green manufacturing. Take Star Times Group as an example, it is an excellent system integrator, technology provider, network operator and content provider in the radio and television industry. At present, Star Times Group has cooperated with other institutions to register and establish companies in more than

30 African countries such as Nigeria and Tanzania and has become a private enterprise in China's overseas radio and television field that covers the most countries, has the fastest user growth, and transmits the most content.

Star Times Group, as an experienced system integrator, technology provider and network operator, has driven more Chinese private enterprises to invest in Africa and ensured the orderly operation of clustered African film and television bases. In the early stage of entering the African market, enterprises do not understand the local customs and cultural differences between the two sides. If the market research is not deep and accurate enough, it is easy to cause mistakes in decision-making, which is not conducive to future development. To avoid such a situation, enterprises can first choose to cooperate with more influential local enterprises to jointly develop the local market, so as to understand the local market conditions more quickly. This requires enterprises to achieve localization in terms of talents, management, and market channels, integrate with local culture, understand the living habits, and needs of local consumers, focus on producing and providing products and services that meet the special needs of local consumers, and enhance the quality of local consumers. sense of identity. Of course, enterprises should choose the most suitable way to enter the African market according to their own conditions and must not follow the rules step by step.

3. CONCLUSION

In the new era, China-Africa production capacity cooperation is an important era proposition for China-Africa to build a comprehensive strategic partnership. As an important part of China-Africa production capacity cooperation, the cluster-type investment of Chinese private enterprises in Africa has achieved initial results, and there is a trend of accelerated expansion and development. Looking forward to the future, adhere to the correct concept of righteousness and profit to regulate and guide enterprises to invest in Africa, actively promote mutual benefit and win-win cooperation between China and Africa, and demonstrate the image of China as a responsible major country, so that Africa is more willing to carry out investment cooperation with China. In addition, China's investment in Africa must strictly abide by the principle of protecting the ecological environment, so that China-Africa investment cooperation and the construction of a community with a shared future for mankind will go far and steadily and benefit all mankind.

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Research on the Wisdom of Online Training in Learning English Classroom Based on Ideological Wisdom Data Analysis Algorithm

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Abstract:In this paper, by studying the characteristics of smart classrooms, the algorithm uses data technology to efficiently screen out the information that users are interested in. This change promotes the automation and intelligent upgrade of journalism. The problem of personalized information consumption brought about by Web3.0 makes it impossible for users to break through the barriers of "information cocoon room". Based on the "Statistics" course, the application and research of the online teaching mode of smart classroom is carried out, using "random questions" "" Smart teaching methods such as "Barrage Discussion" and "Intelligent Analysis", as well as before the class. The diluting of the leading function of mainstream media and the current governance dilemma have brought multiple challenges to ideological security work. It is proposed to attach importance to front-end management of algorithms and strengthen the chain of negative information. coping strategies.

Keywords: Online Teaching, Learning English Classroom, Ideological Wisdom Data Analysis

1. INTRODUCTION

In July 2015, the State Council issued the "Guiding Opinions on Actively Promoting the "Internet +" Action", which proposed the development goal of integrating "Internet +" with the real economy, which not only promoted the progress of "Internet +" related technologies and the development of careers, and put forward a new concept for the reform of higher education teaching methods - the integration of new technology and education [1]. Therefore, many schools have carried out smart classroom teaching in such a large environment. At the same time, due to the arrival of the global epidemic, online education has entered the teaching of all grades in various countries, and many students have begun to use the online learning mode [2].

Driven by the Internet of Things, big data, artificial intelligence and other technologies, smart classrooms can closely combine online learning with offline learning. The rise of smart classrooms is based on the summary of successful practical experience in flipped classrooms [3]. It is the starting point and foothold of the development of educational informatization to realize the innovation and innovation of the online teaching mode supported by the current network technology. The ideology of algorithm recommendation refers to the relationship between the power of the algorithm and the design and use of the algorithm [4], and capital are constantly linked, resulting in "non-neutrality" of value. Algorithmic technology is preset with a certain ideological position from the beginning, and it constantly produces specific ideological consequences in the process of application [5].

The Party's emphasis on ideological work has been raised to a new historical height. Using "extremely important" to emphasize ideological work is a scientific judgment made by accurately judging the ideological situation since the reform and opening up, especially in the face of a series of challenges, problems and tests in the ideological field. As Clay Sherkey said: "A technology has to become common, then common, and finally, until it becomes ubiquitous and invisible, that real change can take place."[6]66 From the current From the perspective of communication practice, in the new generation of news production, algorithms have become the mainstream trend, and Tencent and Toutiao have significant advantages. The traditional news production mode has been transformed into a news production mode of aggregated information, and human-machine collaboration completes news production.

[7] The communication changes brought about by intelligent algorithm recommendation are subtly affecting all aspects of social life. Naturally, ideological risks are hidden, and it has become a problem worthy of great attention in the maintenance of national security and social stability and development. At present, the online teaching mode has gradually become popular, and people's focus is generally on the quality of online teaching [8]. Therefore, in order to improve the overall quality of online teaching, teachers need to establish smart classrooms in the process of online teaching. The establishment of smart classrooms can effectively guarantee teachers' standardized teaching [9]. The students in secondary vocational schools are basically post-00s, and they have entered the multi-screen era since childhood, from the initial PC, to smartphones, laptops and Tablet PC, for them, the world is "screen" [10].

They like to post updates on WeChat Moments, the focus of blended teaching quality assurance. All kinds of intelligent terminals such as Rain Classroom, the combination of technology and teaching ideas [11], and the continuous updating of educational concepts are one of the most effective ways for the development of secondary vocational schools. Therefore, in the context of smart classrooms [12], using the online and offline hybrid teaching mode to carry out teaching is an effective way for secondary vocational schools to cultivate "smart" talents, and it is also a necessary process to adapt to the development of secondary vocational education. Learning Pass can use new technologies and new teaching methods such as smart classrooms to solve the problems existing in traditional classroom teaching [13]. As a result of the transformation and development of traditional classrooms to information-based classrooms under the development of information technology, smart classrooms have the following advantages [14].

Research on students' participation in online learning mainly focuses on the MOOC model or from the perspective of learners. Few studies have explored the smart classroom model and based on the perspective of teachers' teaching. The process of political recognition [15], value cohesion, authoritative belief, etc., in turn creates the risk of obscuring the realization of the value function of mainstream ideology. In order to avoid and resolve the multi-dimensional generation of ideological risks based on algorithm recommendation, it is necessary to promote the government, platform, algorithm, and Internet era, the strategic position of cyberspace is increasing day by day, and cyberspace has become a new battlefield for national or regional security games. Western political thoughts continue to pour into our country, and multi-channel "content transfer" gradually penetrates, and the West continues to import values [16].

2. THE PROPOSED METHODOLOGY

2.1 The Ideological Intelligence Data Analysis Algorithm

The Frankfurt School first put forward the theoretical viewpoint of "science and technology is ideology", which was studied in depth by Marcuse and Habermas. In Marcuse's view, the advanced capitalist society has begun to influence and dominate all areas of human society due to technological progress, which makes technology have an ideological political tendency. From the perspective of the classification of intelligent algorithms, the most closely related to network users is the algorithm recommend. Algorithmic recommendation has turned the past "people looking for information" into "information looking for people", which has promoted a revolutionary change in the way of information dissemination [19]. Based on different research fields and theoretical perspectives, scholars have discussed the risk characterization of intelligent algorithm recommendation in the fields of politics, society, communication, ethics, and ideology. From the perspective of the evolution of political power, some scholars believe that intelligent algorithms, as a new form of power, have penetrated into all levels of the political field. , Political Judgment". In the rapidly iterative ATM environment, the media's new strategy is to develop chatbots. Netizens do not need to read the news by themselves, and the robot assists users in interpreting news in the same way as users chatting with friends. As a new form of ideology, technology completely destroys the ideological characteristics of traditional political means. It skillfully transforms the relationship between man and man into the relationship between man and nature, and uses a seemingly "legitimized" force for the political rule of capitalism. defend.

There are various real-world controversies in intelligent algorithms. In addition, various types of intelligent algorithms are ideological and value-oriented. Therefore, it is extremely important to resolutely defend the security of mainstream ideologies. According to CNKI literature data, the discussion on intelligent algorithms and ideology has been heating up year by year since 2018. It can be seen that the academic research on issues related to systemic risk of intelligent algorithm recommendation has shown a booming trend, and is changing from empirical All-round exploration turns to critical interpretation of theoretical speculation.

2.2 The Learning English Classroom with Smart Data Analysis Algorithms

In the pilot process of smart classroom, whether it is the construction of materials in the preliminary preparation, or all the links in the course implementation process—before class, during class, and after class, it is necessary to focus on the needs of students. According to the needs of different students, different types of databases are built. Professor Zhu Zhiting believes that the smart classroom is guided by a brand-new smart education concept, extending the classroom from the classroom to the outside of the classroom, from the physical environment to the network virtual environment, and re-emphasizes the flipped classroom. Plastics and upgrades.

Smarter classrooms are defined from two perspectives. Based on previous researches on learning intrinsic motivation to promote learning achievement in distance online learning, Andreas M. Kaplan and Michael Haenlein proposed in 2016 to drive students' intrinsic motivation from five dimensions, so that they can better participate in distance education teaching practice The second is to act as an intermediary between users and content, "checking" the quality and efficiency of content acquisition; the third is to collect user feedback information, and dynamically adjust the calculation model and output results; the fourth is to train an autonomous model from deep learning. From the perspective of "media construction of social truth", truth includes objective truth, media truth and subjective truth. The "truth" on the three levels is often inconsistent. The "network truth" constructed by intelligent algorithms in the Internet world. Institutional supervision and other dimensions have discussed the risk management strategies recommended by intelligent algorithms.

Is the algorithm distribution model artificial intelligence? Artificial intelligence has not yet been able to realize nonlinear thinking. Many teachers still follow the traditional teaching concept, regard teachers as the main body of teaching activities, and regard teaching activities as pure knowledge instillation activities. This traditional teaching method cannot help students exercise their thinking ability.

2.3 The Wisdom of Online Teaching in English Classrooms

"Contemporaneous" refers to the simultaneous use of multiple media communication platforms in the teaching process to keep the course content up-to-date and enhance interaction with students. Once such information enters the vision of middle-aged and elderly people through intelligent algorithms, it may spread "virally" across platforms, gradually expanding its negative impact. Take WeChat group as an example, its immediacy and non-public dissemination characteristics make it difficult to supervise the information that is spread across the platform in a timely manner. If things go on like this, with the help of algorithms and codes, the information market may fall into a vicious circle. Make "eyeball news" more and more popular, but serious news has become more and more rare.

In short, changes in gatekeeping power have brought about a mixed bag of information production and distribution. The bigger the platform, the bigger the responsibility. The algorithm-centered network platform is taking away the audience's time, and it is a serious phenomenon that young people use their mobile phones for a long time. If teenagers click on a bad short video, the platform will continue to push similar content, which seriously affects the healthy growth of teenagers. The traditional teaching method focuses on teaching, but this teaching method will limit students' thinking mode to a certain extent. Over time, it will become pure teaching and memory, which not only cannot guarantee the teaching effect, but will also fundamentally affect the

students. Lower students' understanding and acceptance of knowledge.

The main purpose of pre-class activities is to guide students to conduct independent learning. First, the teacher uploads videos, ppt courseware, reference materials, etc. to the Learning Pass platform, and publishes learning tasks through Learning Pass. Since intelligent algorithms belong to different network platforms, involve different fields, and are applied in different types of apps, this increases the difficulty of supervision. Although some network platform content recommendation has added "main theme algorithm", "positive energy algorithm" and so on.

3. CONCLUSIONS

Combining with the 5C framework theory that drives students' intrinsic motivation, this paper proposes three "optimized combination" teaching strategies to improve students' participation in online learning, thereby improving the effectiveness of online teaching. The smart classroom of statistics is a teaching method of two-way collaboration. For students, students can learn in multiple ways and with multiple resources, and change the learning mode to improve the application ability of data analysis. Comprehensively improve the information production literacy, information selection literacy, information discrimination literacy and information integration literacy of user groups in the era of intelligent algorithms. Cultivate users' rational cognition and critical awareness of algorithm recommendation.

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PLC-Based Electric Hybrid Control of Assembly Line Manipulators from Robust Testing to Chaos Modeling

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Abstract:Taking Mitsubishi FX3U-48MR programmable controller as the control center, it drives the electric of the assembly line manipulator, and the servo driver drives the servo motor. The PLC-based assembly line manipulator electric drives the motion of the manipulator through the synchronous belt drive, which can realize the accurate position control of the manipulator. The proposed model will A Gaussian mixture distribution with heavy-tailed distribution characteristics is used as the model output likelihood function, and a parameterization method for the design of a full-dimensional PI observer with robust fault detection is established.

Keywords:PLC, Electric Hybrid Control, Line Manipulators, Robust Testing

1. INTRODUCTION

With the rapid development of the domestic manufacturing industry, the development and application of automatic line technology has been greatly promoted [1], which not only achieves the improvement of product quality and production efficiency, but also has significant effects in reducing energy consumption, improving the working environment and reducing material costs [2]. As equipment becomes more efficient, and accordingly higher quality of operators is required, automatic line technology is considered a robust system. This design is aimed at an automatic line consisting of 5 units of feeding, processing [3], assembling, sorting and conveying. The conveying unit is the most important in the automatic line, and it is also the working unit with the most heavy tasks [4].

The main task of this unit is to precisely position the drive grabbing manipulator to the material table of the designated unit [5], grab the workpiece on the material table, and then transport the grabbed workpiece to the designated place and put it down [6]. The gripping manipulator is a work unit that can realize 4 degrees of freedom movement. Chaos is a seemingly irregular, random-like motion that occurs in deterministic systems in nature. More and more time series with chaotic characteristics are obtained from actual systems, such as atmospheric circulation, temperature, rainfall, sunspots, the Yellow River [7]. In recent years, the prediction and analysis of chaotic time series has become a research hotspot in the field of scientific research [8]. Due to the strong nonlinear approximation ability of neural networks and support vector machines, it has been widely used in chaotic time series modeling and forecasting [9].

The failure of equipment and systems will not only affect the safe operation of the system, but even cause casualties and environmental pollution [10]. With the continuous improvement of product quality, production efficiency and safety in modern production, dynamic system fault detection technology has attracted more and more people's attention, and has developed [1] rapidly in recent years. With the rapid development of new technologies such as computer science and computational intelligence, many new methods and technologies have been introduced into the field. Digital watermarking technology is divided into fragile digital watermarking technology [12] and robust digital watermarking technology according to the application field. Fragile digital watermarking technology can detect any tampering of images or resist conventional compression such as JPEG [13], but it is not suitable for It has strong sensitivity when the image content changes a lot, and is mostly used for image integrity authentication. Robust digital watermarking can resist such as filtering [14]. Pneumatic automation control technology is the use of compressed air as the working medium for transmitting power or signals, with the main components of the pneumatic control system, and the mechanical, hydraulic [15], electronic and other parts or all of the integrated control loop, so that the pneumatic components work in accordance with the requirements of the production process. Condition, an automation technology that automatically acts in accordance with the set sequence or conditions [16].

Since the advent of manipulators in the early 1960s, after more than 40 years of continuous development, the position of manipulators in machinery manufacturing has become more and more important [17]. The development of manipulators has roughly gone through three generations. The first generation of machinery is a program-controlled manipulator, which uses a point control system to control its actions and cannot respond to the external environment [18]. Most of the manipulators used now belong to this category. The second-generation manipulator has sensory organs and is still based on program control, but the control program can be corrected according to external environmental information [19]. The automated production line experimental platform is mainly composed of the following five working units, namely: assembly unit, feeding unit [20], conveying unit, processing unit, and sorting unit. Each work unit can not only act as an independent system that operates autonomously. The device is integrally installed on the sliding plate of the servo drive assembly [21], and is driven by the synchronous belt to make a linear reciprocating motion, positioned to the material table of other work units, and then completes the function of grabbing and putting down the workpiece. Accurate positioning of the manipulator is critical for picking and placing workpieces. The design takes Mitsubishi FX3U-48MR programmable controller as the control center [22].

2. THE PROPOSED METHODOLOGY

2.1 The Robust Testing and Chaos Modeling

The extreme learning machine makes the data have linear characteristics in the high-dimensional space by mapping the

input variables [23] to the high-dimensional space, and then processes the data in the high-dimensional space. At present, the most commonly used training method for extreme learning machines is the pseudo-inverse method [24]. Although the pseudo-inverse method is simple and easy to implement, it is prone to ill-conditioned solutions in practical applications, that is, the output weight is very large. Given a nonlinear feedback chaotic system (1), design a full-dimensional solution of the form (3) PI observer, solve the observer gain matrix, K and weighting matrix G so that the following conditions are established: 1) The matrix A is non-degenerate and its eigenvaluesall have negative real parts; 2) The robust fault detection condition (10) is established.

As an indicator of the signal, the residual signal must respond to the fault signal. The image is mapped to a new position, and the positions of this image are in one-to-one correspondence, not repeating each other, and the distance between the image blocks is far away, so that in the In the process of image tampering, another image block will not be affected because one image block is tampered with. Arnold transform is mainly used to select TB and EB in this algorithm. Given an initial position of Arnold and the number of times of scrambling, the image block is composed The correlation between TB and EB makes TB and EB spread all over the whole image in the algorithm, which improves the traversability of training and embedding watermark blocks. The instructions of the processor are rich and powerful, in addition to all the traditional bit manipulation instructions, timer counter instructions , data transfer instructions, arithmetic operation instructions, comparison instructions, sequence control instructions, and program control instructions, there are also powerful input and output instructions, array file operation instructions, trigonometric function instructions, advanced arithmetic instructions, exponent, logarithm, and arithmetic conversion instructions .

The output likelihood function of the model with heavy-tailed distribution makes the model more robust to outliers. Gaussian mixture distribution, as an approximate Student-t distribution, is still robust to outliers. The univariate distribution is For example, the probability density curves of Gaussian distribution and Gaussian mixture distribution are shown in Figure 1 and Figure 2 in both cases without and with outliers. The histogram distribution of 300 integer points from the Gaussian distribution, and its The maximum likelihood estimation curve of Gaussian distribution and Gaussian mixture distribution is shown in Figure 1. The original host image X is divided into non-overlapping n×n small blocks, and the characteristics of the image blocks are extracted at the same time.

2.2 The PLC-Based Assembly Line Manipulator

The automatic production line experimental platform is mainly composed of the above-mentioned five units, and the main content is to realize the content of the following four processes, that is, assembly, feeding, sorting, and processing. The above four processes are connected in series by the conveying unit to realize the whole process of the automatic production line. The details can be seen in Figure 2 below: The system composition takes Mitsubishi FX3U-48MR programmable controller as the control core, and consists of a touch screen, a robot position detection module, a robot position control module, and a network communication module.Mitsubishi FX3U-48MR programmable controller is the core part of the robot position control system. The PLC (master station) of the conveying unit reads the working status of the other 4 units from the PLC (slave station) of the other 4 units through the network communication module. The characteristics of the pipeline The pipeline process is composed of several related sub-processes, and each sub-process is called the "stage" or "segment" of the pipeline.

The number of pipeline segments is also called the “depth” or “pipeline depth” of the pipeline. The time required for each sub-process to be implemented by a dedicated functional segment should be as equal as possible, otherwise, the long functional segment will become the bottleneck of the pipeline, which will cause "Blocking" and "breaking flow" of the pipeline. This time is generally one clock cycle beat or one machine cycle. Its working mode is periodic cyclic scanning. The scanning cycle is an important indicator of the control process, and the length of the required time determines the speed of the control. The entire working process can be divided into three stages: input processing, program execution and output processing. The completion of these three stages is called a scan cycle of the programmable controller, and during the entire running process of the system, the programmable controller takes a certain amount of time. The scanning speed keeps repeating these three processes.

The control unit selected by the assembly unit is Mitsubishi FX3U-48MR relay output type PLC. The control unit needs to control 13 output points and 20 input points; among them, the 20 input points are: 16 detection sensors, 4 buttons and switches; the 13 output points are: the 3 outputs displayed by the control indicator lights point. The robot position control module is mainly composed of Panasonic AC servo driver.

2.3 The PLC Manipulator Electric Hybrid Control

The control unit selected for the sorting unit is the Mitsubishi FX3U-48MR relay output type PLC, and the configuration of the Mitsubishi FX3U-3A expansion module is used to realize the auxiliary control. The control unit needs to control 8 output points and 13 input points; among them, 13 input points are: 6 detection sensors connected to the 3-phase rotary encoder. The function of network communication: during the working process of the position control system, the transmission As the master station of network communication, the unit's PLC continuously reads the working status of the other four units from the storage units of the other four slave stations, providing the basis for the PLC of the conveying unit to call different position control programs.

The corresponding histogram distribution and the maximum likelihood estimation curve based on different distributions generated by adding 26 outliers to the above dataset are shown in Figure 2. It can be seen from Figure 2 that the Gaussian distribution is very sensitive to outliers, while the Gaussian mixture The distribution has strong robustness and is not easily affected by outliers. To verify the effectiveness of the algorithm, an 8-bit grayscale image of 512 × 512 is used as the test image, and a 32 × 32 binary image is selected as the watermark image (As shown in Figure (3)), take K1=15, K2=0.4. At the same time, the peak signal-to-noise ratio (PSNR) is used to measure the important feature of watermark invisibility. At the same time, in order to verify the quality of the extracted watermark, it can be obtained from the above figure, in the control system without any control algorithm, the output response of the system oscillates, which cannot occur in engineering applications. When the controlled object's pneumatic manipulator is subject to some external disturbance and the controlled parameter deviates from the expected value, because there is no control algorithm, its

automatic compensation effect is limited, and the control accuracy of the system is difficult to guarantee.

The following will introduce and step-by-step control algorithm to control and simulate it. The control unit selected by the assembly unit is the Mitsubishi FX3U-48MR transistor output type PLC. The control unit needs to control: 11 output points and 14 input points; among them, the 14 input points are: 10 detection sensors.

3. CONCLUSIONS

Using PLC, servo driver, servo motor, touch screen and network communication, the position control of the manipulator can be completed more accurately. The Robust-ELM prediction model is proposed under the Bayesian framework. The proposed model not only has the model based on the Bayesian learning method The automatic parameter learning ability avoids the process of selecting regularization parameters for cross-validation. At the same time, the proposed model uses the mixed Gaussian model as the output likelihood function of the extreme learning machine, which improves the robustness of the model.

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Application and Integration of Stochastic Mathematical Decision Tree Modeling Algorithm in Higher Vocational Mathematics Training Intelligent Platform

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Abstract:The classical decision tree algorithm in the data mining algorithm is analyzed and studied, the generation principle and steps of the decision tree algorithm are described, and the advantages and disadvantages of the commonly used decision tree algorithms ID3, C4.5 and C5.0 algorithms are analyzed. The strategy of deep integration of information technology in higher vocational mathematics teaching is explored. Deep integration of information technology and mathematical modeling in higher vocational mathematics teaching, optimizing teaching content and teaching mode, constructing perfect curriculum resources, improving teaching efficiency, and stimulating learning interest.

Keywords: Stochastic Mathematical Decision, Decision Tree Modeling, Higher Vocational Mathematics, Training Intelligent Platform

1. INTRODUCTION

Data mining is not a multidisciplinary field, it is one of the most active branches of database research, development and application [1]. It integrates database technology, artificial intelligence, machine learning, neural networks, statistics, pattern recognition [2], knowledge base systems, knowledge Obtain. The research on the trend of population mortality has a long history. As early as 1729, De Moiver used the force of death to describe the death process [3]. The survival curve model he applied was widely used at that time, which was also the earliest deterministic mortality model. This model does not describe the random variation trend of mortality, but fits the variation of mortality data through a multi-parameter expression [4].

Therefore, in order to cultivate and create a better differentiated competitive advantage in the new market, the business management model and service value system of enterprises [5] have gradually shifted to the value orientation of customers, focusing on the real needs of customers, in-depth understanding, Analyze and guide customers. 2020 is a special year. In the context of national epidemic prevention and control [6], in February 2020, the "Notice on the Work Arrangements for "Scheduling and Suspension of Schools During the Delayed Opening of Primary and Secondary Schools" was released [7]. The introduction of higher vocational mathematics is an important subject, a compulsory course for many students, and a difficult subject at the same time. It is not conducive to students to absorb knowledge [8], and it is easy to make students feel bored. Mathematics teachers in higher vocational colleges can use online and offline integration methods to carry out teaching [9], so that students can actively participate in mathematics learning. After artificial intelligence has risen to the national strategic level, high-quality platforms for the field of AI education have developed in an all-round way, and the integration of intelligent means has become a modern teaching method. main trends [10].

At present, colleges and universities have a certain investment in the teaching of integrating information technology [11], but their role in higher vocational mathematics teaching is limited. Higher vocational mathematics courses are faced with many difficulties. The decline of the quality of students in vocational colleges, the continuous compression of course hours [12], and the difficulty of traditional mathematics classroom teaching mode to achieve good teaching effects all affect the development of teaching [13]. Data mining is a promising and thriving frontier of database systems and new database applications, and is one of the most active branches of database research, development and application [14]. It is not satisfied with simply querying the data, but wants to find out more useful knowledge from a large amount of data. The main work of the article consists of two parts [15].

The first part describes specific methods for improving the fitting effect of random mortality models. Through the process of decision tree construction [16], taking Lee-Carter model and Renshaw-Haberman model as examples, the fitting effect of random mortality model is improved, and the different aspects of decision tree under different models are analyzed to improve the model [17]. The improved fitting results are compared with the original model fitting results to test the accuracy of the original model fitting. At present, in-depth analysis and research have been carried out on the prediction of customer churn in the IT industry in China [18], resulting in a large number of theoretical results and Literature analysis data, and even some IT companies have developed their own customer churn prediction system [19]. In the process of analysis, the author takes into account the long time span of 15 years, and it is necessary to select representative literature for analysis every year, so TOPN=50 is specially set [20].

In addition, three indicators of the threshold are set, where the c value is set to (2, 2, 20), the cc value is set to (4, 3, 20), and the ccv value is set to (3, 3, 20) [21]. The choice of algorithm is Pathfinder. Mathematical knowledge in higher vocational colleges is relatively boring and difficult to understand. Students are prone to resisting emotions. Many students are listening to the class on the surface [22], but they are actually in a daze. Some students even appear sleepy and listless in class. These phenomena will hinder the development of higher [23] vocational mathematics teaching. Facing the new generation of students who are currently growing up under the

screens of mobile phones, computers, iPads, etc., traditional classrooms [24], whether in organizational form or teaching mode, are mostly teacher-centered, and the model lacks innovation. In terms of improving teaching effects and learning initiative appears powerless [25].

2. THE PROPOSED METHODOLOGY

2.1 The Stochastic Mathematical Decision Tree Modeling Algorithm

In fact, data, information and knowledge can be regarded as different forms of generalized data representation. It is no exaggeration to say that people are greedy for the possession of data, especially the development of computer storage technology and network technology has accelerated the scope and capacity of people's collection of data. This greed results. A decision tree is a series of splitting rules that are learned from the training data set, including the selection of features and the selection of optimal split points.

When studying classification problems, decision trees are classification trees. During classification, the decision tree algorithm will divide the data set. There are countless conditional probability models of classes based on feature space division; for regression problems, decision trees are regression trees. For example, in " At the International Conference on Knowledge Discovery, many scholars suggested a distinction between the two terms. The core idea is the whole process of discovering knowledge from the database, and it is a specific and key step in this whole process. This view has its validity. Whether the model can fit the existing data well is an important criterion for judging the pros and cons of the random mortality model. Therefore, improving the fitting effect of the random mortality model is a major direction of studying such models.

The boosting method in machine learning technology is a common method to improve the accuracy of the model. KDD-related data is extracted from the database according to the user's needs, and KDD will mainly perform knowledge extraction from these data. In this process, database operations will be used to simply process the data, but some redundant and irrelevant data will be roughly deleted. The establishment of the classification model is to establish a model to describe the predetermined data class or concept set. In this stage, the establishment of the classification model is completed by analyzing the training sample data. Each sample in the training sample data belongs to a predefined class.

2.2 The Higher Vocational Mathematics Training Intelligent Platform

Vocational mathematics knowledge is relatively boring and difficult to understand, and students are prone to resistance. Many students are listening to the class on the surface, but in fact they are in a daze. Some students even appear sleepy and listless in class. These phenomena will hinder the teaching of mathematics in higher vocational education. development. As a public basic course, advanced mathematics mainly serves the study of follow-up professional courses. It is very important for the follow-up development of students to cultivate students' basic computing ability, modeling ability to deal with practical problems, and self-learning and inquiry ability.

The current situation of teachers speaking and students listening in the traditional mathematics of higher vocational colleges is difficult to reflect the student-centered teaching concept. Rain Classroom Wisdom Platform is a teaching tool that provides three-dimensional and intelligent services for classroom teaching based on the thinking of "Internet +" and using modern information technology. The smart platform establishes the connection between teachers and students through mobile phone WeChat, and integrates new teaching concepts, teaching methods and evaluation methods into teaching. The teaching goal is like "a beacon that guides the ship forward in the sea", which has a guiding role in the development of teaching links. Both the design of teaching activities and the evaluation of teaching are based on teaching objectives. By expanding the teaching target hierarchy diagram, it can be found that it is mainly composed of three levels, as shown in Figure 4-2.

Most of the traditional higher vocational mathematics teaching is carried out by teachers' oral narration, which is relatively monotonous and boring as a whole. The traditional classroom method is limited by the teaching hours and space, and the opportunities for teachers and students to discuss and study are limited, which makes it difficult to meet the mathematical ability requirements of talents in national strategies such as new engineering construction and artificial intelligence. At present, most vocational mathematics courses adopt the mode of multimedia + blackboard, textbook + practice, teachers teach, students practice, and students have less time for independent thinking and learning. Students can only passively accept it, and it is difficult to exert their subjective initiative. In the long run, it is not conducive to the improvement of teaching efficiency. By adopting a teaching mode that integrates online and offline. Before class, teachers issue preview tasks through the Rain Classroom wisdom platform: First, students are required to look for the knowledge related to differential calculus in the professional courses "Electrical and Electronic Technology" and "Automotive Engine" they are learning, and ask questions.

2.3 The Higher Vocational Mathematics Training Intelligent Platform Application Integration

There are many difficult contents in higher vocational mathematics. It is difficult for students to listen to teachers' lectures directly in the classroom, which is difficult to achieve the desired effect and is not conducive to the improvement of teaching efficiency. At this time, teachers can guide students to preview offline. The biggest role of preview is to pave the way for learning in class. In the process of intelligent information technology integration, it is necessary to ensure that the selected information technology is stable, reliable, intelligent and simple, and can effectively assist teaching to solve the difficulties of traditional classrooms. At present, multimedia technology has been widely used. In the teaching of mathematics courses, based on the rain classroom wisdom platform, teachers can timely obtain the students' preview data, classroom attendance data, classroom participation data, random test data, group task data, etc. After-school test data, math problem feedback data.

The one-fold cross-validation method firstly divides the entire data set into equal subsets, and then performs the second iteration, using each subset as the test set in turn, and the other subsets as the training set. Compared with the difficulty of explaining the results of black-box models such as artificial neural networks, the decision tree algorithm adopts a white-box model, and its selection is based on Boolean logic that is easy to explain. Quickly. It mainly processes the selected data samples before data mining, makes up for missing values of attributes and processes noise data, and finally integrates the

data, so that the quality and format of sample test data meet the requirements of data mining algorithms.

Because the data to be processed may have various data quality problems, for example, the data field may contain incorrect values or contain null values, etc." When it comes to intelligent mobile intelligent terminals, it is understood in a narrow sense from its literal meaning. The familiar mobile smartphone for everyone. However, the intelligent mobile terminal emphasized in this study refers to the device that can be embedded in the computer system, and its meaning is understood from the perspective of information technology. With the help of taxonomic vision, in addition to mobile smart phones in the narrow sense, it also includes laptop computers, tablet smart terminals, etc. Due to the existence of tree pruning and parameter control, the tree algorithm can better fit the data without overfitting, thereby greatly improving the generalization ability of the model.

3. CONCLUSIONS

The classical decision tree algorithm in the data mining algorithm is analyzed and studied, the generation principle and steps of the decision tree algorithm are described, and the advantages and disadvantages of the commonly used decision tree algorithms ID3, C4.5 and C5.0 algorithms are analyzed. The deep integration of the Internet, information technology, mathematical modeling ideas and mathematical tools to optimize the teaching mode is an effective means to improve the quality of teaching. Teachers need to have strong information application ability, and scientifically use multimedia technology, mathematical modeling tools, mobile software, micro-lecture videos, online teaching platforms, etc. to optimize classroom teaching.

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Intelligence and Application of College Students' Performance Analysis Management Information System Based on Code Generation and Reconstruction Algorithm

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Abstract:Management Information System (MIS) is an important means to realize enterprise modernization. The operation of data is an important content in the management information system. The algorithm reuses the original three-stage code generation process to a large extent. For the student achievement analysis system, the data import is imported from the Oracle database to the MySQL database through the JDBC API. ;Data statistics Statistics on the scores, number of people, scoring rate, standard deviation, score line ranking and other dimensions at the student level, class level, school level and district level. At the same time, according to the dynamic characteristics of the reconfigurable instruction set, it is configured according to the system hardware resources and reconfiguration.

Keywords: College Students' Performance, Management Information System, Code Generation, Reconstruction Algorithm

1. INTRODUCTION

Management information system is a human-led system that uses computer hardware, software and other office equipment to collect, transmit, store, process, maintain and use information [1]. The popularization of computers has brought a new storm of reforms to the management of student achievement in schools. In order to save people from tedious, repetitive and complicated work, we have introduced a network-based student [2] achievement management system, which can effectively promote the maximum utilization of resources. to realize modern automation of student achievement management, etc. [3] With the rapid development of digital information technology, network technology and hardware technology, the application fields of embedded systems are becoming more and more extensive, and computing tasks are characterized by high dynamics [4].

This makes the design of embedded processors need to take into account both performance and flexibility factors. The development and [5] application of educational affairs and teaching management systems in colleges and universities are developing rapidly. The various systems currently used in colleges and universities also bring some problems in the use of teaching management [6]. For example, the systems of some schools are purchased commercially and are not very suitable for the specific environment of the school. In 2018, the Ministry of Education officially released the "Education Informatization 2.0 Action Plan" [7], proposing to make full use of Internet technology to provide learners with a large number of appropriate learning resources and services [8], and to help my country to reform the innovative development of education, teaching, management and services. In the industrial field Most large and medium-sized enterprises are building their own data warehouses and data mining systems, using data mining technology [9] to analyze the products produced by the company, production line processes and product sales, which not only reduces the cost of the production line, but also improves the production line. The technological level is higher, and the products of higher quality can be obtained [10].

With the expansion of the enrollment scale of our school, more and more majors and courses are offered, and the distribution of students' grades [11] is more and more complicated. Student achievement is an important basis for evaluating teaching quality and an important symbol of whether students have mastered what they have learned. At the same time [12], striving to improve students' academic performance is also the goal of every college. In the management information [13] system, the management of information is nothing more than the operations of adding, deleting, modifying, and checking data; because the entities of each information are different [14], developers cannot extract common modules; when developing new information modules, the code It is completely done by hand. Students cannot understand their specific situation in the school [15], which seriously affects their enthusiasm and enthusiasm for learning, and makes the daily management of the school more difficult. Using the hardware programmability of reconfigurable logic devices, the optimal execution environment can be adaptively customized for different application characteristics [16], so as to more effectively meet different application requirements in the embedded field while maintaining the advantages of ASIP.

For example, only the storage, statistics, sorting, and simple passing [17] rate analysis of grade data can be used, but there is no analysis of the deep-seated reasons for students' outstanding or failing grades, let alone the processing and utilization of historical data [18]. Take the student achievement management of the technical college as an example. The system just transforms the manual teaching management into man-machine management. If there is a connection [19], these knowledge points can be combined to teach together. Therefore, the principle and implementation process of the association rule algorithm Apriori are analyzed. In order to improve its speed [20], the parallel framework

ForkJoin is combined to realize its parallelism, and a public data set is selected to compare the performance of the original algorithm and its parallel algorithm [21]. High-quality input data is a prerequisite for successful mining, and it is very important to send a process. Data preparation can be divided into three sub-steps: data selection [22], data preprocessing and data transformation [23]. Topic orientation is the most basic principle of data warehouse in the process of data organization, and all data are developed around this theme. The so-called theme is a logical concept, which is to conduct in-depth analysis and extraction of relevant data from the management level and perspective, and further analyze the required objects [24].

2. THE PROPOSED METHODOLOGY

2.1 The Code Generation and Refactoring Algorithms

In the traditional management information system development process, it often starts from writing a large amount of basic code, and the code writing part occupies most of the project development time, resulting in high development costs.

Automatic code generation is the use of computer programs to automatically generate usable code. Its purpose is to reduce repetitive labor development, improve software quality and development efficiency, and solve the problem of code reuse in software development. Compared with the statement-level compilation strategy, the high-level compilation strategy has lower requirements on the programmer's knowledge of architecture such as registers, so it is easier to apply.

The Chimaera compiler [6] can identify specific statement sequences in C language programs, convert them into operations of reconfigurable functional units, and then generate corresponding reconfigurable resource configuration codes to achieve optimized execution. The algorithm is based on partitioning The association rule algorithm, designed by Savasere et al., the main idea of the algorithm is: from dividing the database into N blocks, generating frequent itemsets from each block, merging the frequency sets of N blocks, and obtaining all frequent itemsets, for the candidate itemsets The support degree is calculated to generate the final frequent itemset; the algorithm can reduce the memory requirement and improve the parallelism after the data is divided into blocks. Describe the structure and meaning of the data; metadata is a description of data resources, which is a The basis and premise of data information sharing and exchange, metadata is used to describe the content, representation, organization and some other characteristics of the data set.

A common principle of computer terminals is openness, which can meet certain public needs that can be operated with each other, and enable different terminals to work together in a relatively harmonious and harmonious manner.

2.2 The Analysis and Management Information System of College Students' Achievement

Through the research of traditional compilation methods, combined with the reconfigurable characteristics of RISP instruction set, this paper studies a compilation process that extends the three-stage method of back-end code generation of traditional compilers, as shown in Figure 1. Show. Then it focuses on a code hybrid optimization generation algorithm for RISP instruction set.

The architecture of the network-based student achievement management system usually uses a three-layer structure model, and the three layers are the application layer, the presentation layer and the data layer. The application layer is in the server, and the presentation layer is in the client terminal browser. MCGA uses the abstract model of reconfigurable logic resources and its related parameters, and integrates the code generation process related to reconfigurable instructions in the code generation process of the traditional compilation process. In this stage, the original three-stage method is reused to a large extent, so as to optimize the generation of assembly code that mixes RISP basic instructions and reconfigurable instructions. The system management module mainly manages users, manages user roles, and manages functions.

The user has some basic information, which is used for the verification of login and related permissions. There will be multiple roles in the system, and the permissions of each role are different. It should be noted that the database data accessed by using the system navigation list is mainly Divided into two parts. The first part is the entity information mentioned in Chapter H, including student information, teacher information, course information, class information, achievement information and so on. The main core content of the data warehouse design is the data warehouse modeling process, that is, the transformation from relational and normative data models to multi-dimensional models. , logical model and physical model.

The concept of reflection was proposed by Smith in 1982, which mainly refers to the ability of a program to access, detect and modify its own state or behavior. In the field of computer science, reflection refers to a class of applications that can be self-describing and self-controlling. We can effectively avoid the access of criminals through the information security of the database, or avoid authorized users to perform illegal operations on relevant important data, its security can be achieved through the username and password.

2.3 The Intelligence And Application of Performance Analysis Management Information System

If you want to solve this problem, you can block the connection between the database and the computer terminal through the network. The network user name is stored in the server through variable processing, and for specific users, they can only perform operations corresponding to their identities and browse the corresponding interface. The source code marked with annotations is completed through dynamic hot spot analysis, and after compiling the front-end analysis, a control flow graph (CFG) and a data flow graph (DFG) containing annotation information are generated. The MCGA combines the target description of the RISP architecture and the parameterized model of the reconfigurable logic resources to process the generated CFG and DFG, thereby realizing the optimized generation of the program executable code.

The performance analysis module mainly conducts further analysis on the well-stated data, and uses some charts to display the data. It mainly includes the analysis of the overall situation of the district, the analysis of the overall situation of the school, the analysis of the overall situation of the class, the comparison between the school and the district, and the comparison between the class and the school and the district. The module that manages the rights of all administrator users in the system is the user management module. If and only if the user who logs in as the administrator of the W system can

see this module in the system management list, ordinary administrators, teachers and students do not have this module.

The so-called demand analysis is also a conceptual model, which mainly analyzes the objective situation of the system and draws a subjective conclusion, which is to realize the communication between the objective reality and the main meaning. The main purpose of conceptual model design is to scientifically and systematically analyze and abstract the entities in the real objective world involved in the data warehouse, which is the blueprint of the data warehouse. The instruction selection phase of MCGA needs to obtain two instruction selection schemes, which can accomplish the same program function.

3. CONCLUSIONS

This paper expounds the conformance test method and main process of embedded system TSS, adopts the automatic system random test method, and effectively meets the requirements of functional test coverage criteria. Design principles, such as good user interface, security principles, and principles of openness and scalability. The process of obtaining k-item frequent sets through k-1 frequent sets, and the process of obtaining strong association rules through frequent sets. It is implemented by inheriting the RecursiveTask class that returns the result, and defines the appropriate threshold for dividing the task.

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Automatic Conversion Algorithm and Dissemination Network of Realistic Style of Cultural Heritage Documentaries Fused with Heterogeneous Image Fusion

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Abstract:Starting from the basic principle of information fusion, this paper discusses the research status of heterogeneous image fusion structure, feature-level fusion algorithm and decision-level fusion algorithm in detail. The creation of non-fiction gives the audience the highest prestige, and the real thing has great power, which subtly leaves a thought in the heart of the audience. From the theoretical perspective of "cultural space" and "third space", taking intangible cultural heritage documentaries as the object, it analyzes the reconstruction of intangible cultural heritage cultural space in the context of new media and the expansion of intangible cultural heritage-mediated survival, and the template matching of similarity The method realizes the automatic registration of visible light and infrared images containing airport scenes.

Keywords: Automatic Conversion Algorithm, Dissemination Network, Realistic Style, Cultural Heritage Documentary

1. INTRODUCTION

With the development of remote sensing technology, various spaceborne and airborne sensors can provide remote sensing images of various levels, resolutions and bands for battlefield monitoring [1]. Reliable and highly deterministic target intelligence information. Learning and understanding the massive multimedia data emerging on the Internet has become a research problem that has attracted much [2] attention. Network multimedia data has three characteristics: 1) huge scale; 2) various heterogeneous Data coupling, such as text, images, audio and video, etc. [3]; The data content is scattered. Give you a camera, what kind of world will you use it to record [4].

Real, or fairy tale. Documentary is a film or television art form that uses real life as the creative material, takes real people as the object of expression [5], and performs artistic processing and presentation on it. The social influence of intangible cultural heritage is shrinking, mainly due to the impact and squeeze of the Chinese people's [6] contemporary lifestyle on the cultural space of intangible cultural heritage. However, intangible cultural heritage and social modernization do not have to be [8] discussed in an either-or context. McLuhan once commented on media technology. "Intangible cultural heritage" is an art form with strong historical and cultural heritage [9], it requires the audience to experience it slowly in order to be able to understand and accept the "intangible cultural heritage". This also makes the "intangible cultural heritage" documentaries have a large psychological gap with the audience in the process of dissemination [10].

At the beginning of 2017, the General Office of the Central Committee of the Communist Party of China and the General Office of the State Council issued [11] the "Opinions on Implementing the Project of Inheriting and Developing Chinese Excellent Traditional Culture", and issued a notice requiring all regions and departments [12] to conscientiously implement it according to the actual situation. In November 1997, the 29th session of UNESCO adopted the resolution "UNESCO Declares the Masterpieces of Human Oral and Intangible Cultural Heritage" [13]. In China, the title of "intangible cultural heritage" has officially replaced the title of "folk traditional culture". Information fusion is to combine, correlate and combine data from multiple sensors and information sources [14] to obtain accurate location estimates and identities The estimated information processing process. The underlying visual feature is a widely used image representation, including color [15], texture, corners, etc. Previous work usually adopts a variety of visual information fusion methods to solve image understanding problems, such as pre-fusion [16].

In the field of creation of today's documentaries, many are based on the ordinary life of ordinary people. In the creation, although the visual differences [17] are different, the technology and the quality of the pictures are different, the content of the filming is the life that they are familiar with, and the audience will feel the same experience [18]. The adoption of modern means of communication can not only strengthen the dissemination power of intangible cultural heritage, but more importantly, it is the reconstruction of cultural space with the help of new media, which will open up a practical path [19] for the media-based survival of intangible cultural heritage. At the same time, the inheritors of "intangible cultural heritage" are often older, and "intangible cultural heritage" documentaries [20] need objective and real performance, lack of artistic processing, and the audience will feel boring when they accept it. Although these "intangible cultural heritage" documentaries have high artistic value, it is difficult to directly convert them into economic benefits. For a systematic study of a subject [21], classification is essential.

Scholars need to summarize their differences from different angles and follow the principle of "identity", and then conduct professional analysis and comparison, so as to grasp the internal structure and development [22] law of this discipline. The term intangible cultural heritage first appeared in the "Cultural Property Protection Law" promulgated by the Japanese government in 1950. The code extended the concept of "intangible cultural property" [23] (ie "intangible cultural heritage") from the concept of "tangible cultural property". ①, and "intangible cultural properties" are also included in the protection of national cultural heritage. The function of

information fusion has been fully embodied in humans and animals [24].

2. THE PROPOSED METHODOLOGY

2.1 The Fusion Heterogeneous Image Fusion

For example, the human body combines various information collected by various organs (eyes, ears, nose, skin) to make judgments on the surrounding environment through prior knowledge. The former focuses on Representation, the latter focuses on semantics. How to effectively integrate these heterogeneous information is of great significance for semi-supervised learning of network images.

This reflects the basic process of information fusion, which is to first convert various information or data into valuable interpretations of the environment, and build a knowledge base suitable for interpreting the meaning of the combined information. Co-training algorithms iteratively by continuously increasing the training data Improve the performance of the learner, suitable for online analysis of network data. Based on the method of graph regularization. Based on the basic principle of information fusion, according to the abstraction of input information and the difference of fusion output results, people have successively proposed a variety of fusion function models. Including three-level fusion model, JDL (Joint directors of laboratories) model. Based on local learning and co-training, this paper proposes a network image semi-supervised learning algorithm based on local co-training (LCT).

This method treats various heterogeneous data contained in network images as multiple views. The differences in the imaging mechanism of heterogeneous images result in incomparability between image data, making pixel-level (data-level) fusion very difficult. Feature-level and Decision-level fusion has become the focus of heterogeneous image fusion research. At the same time, considering the flexibility of the Dasarathy model and the complexity of heterogeneous image fusion itself. This property is of great significance for iterative incremental online learning.

2.2 The Cultural Heritage Documentary Realistic Style

Fusion processing mainly realizes parameter correlation and state vector estimation, and the multi-source information mainly involved includes various intelligence radars, tracking infrared and other non-imaging sources. There are more than 70 languages in the world, we want to know The culture of a country requires learning the language of that country, but there is a language that is universal in the world, and that is the language of pictures. The popularity of intangible cultural heritage documentaries in recent years stems from the rapid rise of new media in the context of urbanization; at the same time, the maturity of a new generation of young audiences has also solved the problem of aging TV humanities documentaries. Micro-documentary of intangible cultural heritage documentaries.

The story of "reading" and understanding. Since the "Silk Road" co-produced by my country and Japan in 1980, Chinese documentaries have brought an open consciousness to the TV industry and Chinese audiences. The Canal has become the earliest climax in the history of Chinese documentary development. It is an important manifestation of the communication trend. Micro-documentaries generally refer to short-term documentaries. In a narrow sense, the standard is less than 12 minutes, and in a broad sense, it is less than 25 minutes. In the new media environment Most of the micro documentaries are based on the former.

The advent of the new media era has brought new hope to the inheritance and dissemination of "intangible cultural heritage" and provided a new channel for the dissemination of "intangible cultural heritage" documentaries. New media is highly interactive, spreads rapidly, is free and open, and has massive data. Its communication mode surpasses any previous traditional media. China has a vast territory, a long history, countless historical events, and various historical figures. Moreover, the historical value and cultural value of each piece of history cannot be overestimated. Picking out suitable themes for shooting from various chaotic narrative elements is a test of the creator's professional quality and historical and cultural knowledge reserves. Documentaries can present information in the form of dynamic images, which meet the aesthetic needs and appreciation requirements of contemporary audiences, and have a huge audience.

2.3 The Automatic Conversion Algorithm and Propagation Network of Documentary Realistic Style

Intangible cultural heritage documentaries can connect history and contemporary times in the form of images, create a new cultural mimetic environment, and allow audiences to frequently come into contact with traditional Chinese culture in their daily lives. The theory of cultural identity believes that for the cultural environment in which it exists, the process of communication through the media, from the transmitter to the receiver, is feedback. The communicator transmits information to the audience, and the audience will give feedback to the communicator. The feedback is particularly evident in the documentary "A Bite of China". Their use of scenes is extremely free, and the viewing time is fragmented, which also promotes the continuous evolution of the production and broadcast mode of the documentary, until the emergence of micro-documentaries.

Cultural heritage. I still remember a monologue in China on the tip of my tongue: "No matter how far you walk, in people's minds, there is only the taste of hometown, familiar and stubborn. It is like a taste positioning system. Before the rise of micro-documentaries, the existence of Chinese documentaries was obvious. Qian Chao, director of "Materia Medica China", summed up this way: "First, he is not good at operating business and advertising development; second, the audience is obviously aging, and it is not attractive to young audiences; third, new media communication channels are blocked and the platform is single. The public is no longer bound by mainstream discourse, and every user has become a producer and disseminator of information. New media users can freely engage in the inheritance and dissemination of “intangible cultural heritage” according to their own interests and hobbies.

The creation of historical and cultural documentaries is based on documentaries, and visibility is the most basic requirement of film and television works. All plot contents must be displayed in the form of sound and pictures, and the picture performance should be the main body of performance. The vivid and vivid picture content concretizes the abstraction in the human brain, concretizes the text, and concretizes the philosophy, so that the audience can more easily understand the historical significance and cultural connotation behind the historical and cultural documentaries through these directly visible figurative forms.

3. CONCLUSIONS

This paper analyzes the current situation of heterogeneous image fusion from the basic principles of information fusion, the functional model of information fusion, the structure of information fusion, and the algorithm of information fusion. Intangible cultural heritage micro-documentaries can reconcile the conflict between mainstream culture and youth culture to a greater extent, and thereby move closer to the "public domain". This is the revival of intangible cultural heritage as the spirit of folk culture, and it is also an unexpected harvest in the digital age.

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Industrial Agglomeration and Resource Environment Analysis - Empirical Discussion from Chinese Cities

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Abstract: Due to the complexity and dispersion of environmental issues, directly defining their property rights cannot truly solve environmental quality problems. This article proposes an indirect solution to the industrialization of environmental resources and elaborates on the specific content and external guarantee policies of the industrialization of environmental resources. This article uses a game model and its extended analysis to indicate that the source of resource-based industrial clusters is the result of the comprehensive effect of regional effects and agglomeration effects. The formation of resource-based industrial clusters is influenced by transportation costs, final product demand functions, regional effects, agglomeration effects, and the gap in agglomeration effects between two regions.

Keywords: Industrial Agglomeration, Resource Environment, Empirical Discussion

1. INTRODUCTION

With the development of the economy, people have paid a heavy price for resources and environment. People are increasingly realizing that the losses or benefits of a country or individual are often not determined by their own actions. From a macro perspective, the annual increase in the area of the ozone hole is as large as that of the mainland United States. Although the destruction of the ozone layer is largely attributed to developed countries, both developing and developed countries face the same threat. From a micro perspective, the owners of downstream reservoirs did not engage in any destructive activities against the reservoirs, but only suffered economic losses due to the extensive deforestation of the upstream forests.

The losses caused by environmental pollution and destruction to the region, neighboring areas, and the world, as well as to modern and future generations, all reflect a commonality, which is an external spillover effect outside the market. These heterogeneous element endowments include natural factors, geographical location, market conditions, cultural customs, etc., which are an immovable and distinct set of elements in a certain region from other regions. However, the advantage of natural resources can only explain about 20% of the phenomenon of industrial agglomeration. In addition to regional factors, there are other factors that promote the formation of resource-based industrial agglomeration. Therefore, we refer to these other factors as "agglomeration factors". The agglomeration factor mainly emphasizes the economies of scale generated by the spatial agglomeration of production factors and the endogenous comparative advantage caused by increasing returns, which are also important reasons for industrial agglomeration.

The development of the digital economy has gradually evolved from digital technology to digital industries. Therefore, exploring how the aggregation of digital industries in China affects total factor productivity is of certain value and significance for achieving industrial structure optimization and upgrading, improving resource allocation efficiency, and better leveraging the driving force of technological innovation represented by internet technology, thereby assisting sustainable economic growth in China.

Industrial agglomeration promotes the optimization of resource allocation and thus improves TFP mainly in the following ways: firstly, specialization of division of labor, where enterprises in the same industry form clusters within a certain geographical space range. Enterprises can continuously improve through mutual communication and learning, making the industries within the cluster range more specialized, improving collaboration efficiency between enterprises, generating external effects, and promoting productivity improvement; The second is the improvement of infrastructure level. Urban infrastructure such as transportation and communication are crucial for the normal operation of enterprises. At the same time, the formation of gathering areas will also encourage local governments to increase investment in public infrastructure, provide more public goods and services, and help enterprises effectively reduce production costs and improve production efficiency. In environmental issues, due to the widespread existence of externalities, in practice, it is difficult to concentrate all relevant parties within the market scope. In most environmental management practices, such as the impact of pollution on public health and the loss of tourist rest landscapes, the number of people affected is often in the thousands, or even millions.

If, according to the procedure of property rights approach, all affected individuals need to be gathered together and asked for compensation or willingness to pay based on the ownership or non-ownership of property rights, then the cost of this approach is considerable and often difficult to implement. Moreover, there are always some people who want to take advantage of the diffuse nature of the environment to share the benefits or escape from others purchasing clean environments.

2. THE PROPOSED METHODOLOGY

2.1 Analysis on the Characteristics of my country's Resource-Based Industrial Clusters

Due to reliance on resources, exploration and extraction cannot be carried out without resources, so resource extraction enterprises generally gather in resource producing areas; However, resource processing and sales enterprises face the problem of location selection. They may gather in resource producing areas or non-resource producing areas. Therefore, for resource-based industries, there are two types of

agglomeration: one is traditional industrial clusters, where resource extraction enterprises and processing enterprises form an agglomeration situation in areas with resource endowments. Environmental resource industries refer to those specialized in the protection, governance, and restoration of environmental resources the industrial sector responsible for regeneration, renewal, value-added, and accumulation mainly includes soil improvement, restoration of arable land, seed harvesting and afforestation, aerial seeding and grass cultivation, protection and breeding of endangered wild animals, aquatic seedling cultivation, water conservancy, wastewater and waste gas purification, and protection of various resources.

The process of environmental resource industrialization includes three stages: basic research, diffusion, and infiltration of environmental resources. Basic research on environmental resources refers to activities such as the protection and governance of environmental resources; Diffusion refers to the commercialization of environmental resource protection and governance; Infiltration refers to the correlation and interdependence between the environmental resource industry and other industrial economies, leading to the gradual upgrading of the environmental resource industry. Using a continuous space function to describe industrial agglomeration, constructing indicators from the perspective of distance, effectively avoiding boundary problems, and meeting the five conditions recognized by academia for measuring industrial agglomeration, including the ability to compare between industries the overall clustering degree of the industry can be controlled, the size distribution of enterprises can be controlled, the MAUP effect can be avoided, and the estimated value can be tested for significance. From this, the DO index is currently an ideal tool for studying the agglomeration of industries crossing boundaries. Due to the uneven distribution of resources and the high transportation costs of natural resource products, the formation of resource-based industrial clusters in China generally has strong geographical rootedness.

China's mineral resources are mainly distributed in the western region, which has a complex geographical environment and outdated transportation facilities, making it impossible to adopt a long-distance commuting mining development mode like Canada. Therefore, China generally establishes industrial clusters in ore forming areas and develops them into mining communities and small towns.

Since most of China's mineral deposits are small and medium-sized, with limited reserves and mostly lean minerals, this also restricts the scale and development prospects of China's resource-based industrial clusters. Many resource-based small towns in China have become very sluggish after resource depletion, leaving behind a series of social problems such as unemployment, environmental pollution, and economic recession among residents. To truly achieve the industrialization of environmental resources, it is necessary to protect and renovate environmental resources, turn them into tourism resources, and then drive the development of the commercial industry. Through comprehensive tourism, the problem of clarifying the property rights of public environmental resources can be solved, achieving the trinity of ecology, tourism, and commerce, and common development. A beautiful and clean environment can bring many advantages to the local economic development. The development of the tourism industry not only brings huge economic benefits to the region, but also greatly stimulates the development of the local tertiary industry through tourists' shopping consumption.

2.2 The relationship between resource-based industry agglomeration and resource environment

According to a research report by the World Tourism Association, in 1994, the world's tourism industry accounted for 1/10 of the world's gross domestic product, and one out of every nine job opportunities worldwide came from the tourism industry. The aggregation degree of the cultural, sports, and entertainment industries, as well as the wholesale and retail industries, has basically stabilized, while the aggregation degree of the manufacturing industry, information transmission, software, and information technology service industries has shown an overall upward trend, which is basically the same as the current situation in China. The development of Internet information technology in the wholesale and retail industries, as well as the cultural, sports, and entertainment industries, has formed a certain scale and is becoming mature. However, there is still significant room for development in the construction of digital infrastructure related to manufacturing, information transmission, software, and information technology services. This further indicates that the continuous development of the Internet and corresponding emerging technologies has promoted the deepening of the aggregation of digital industries.

The structure of China's resource-based industrial clusters is single, and the simple supply chain form has replaced the network and complementary characteristics of general clusters, demonstrating strong professionalism. The members within a cluster are more characterized by linear relationships based on natural resource supply, without demonstrating the network advantages of the cluster. There is a lack of knowledge exchange and spillover among members within the cluster, and the entire system tends to become rigid and closed. In addition, the Chinese government has strong intervention in resource-based industrial clusters. Many resource-based industrial clusters are generated under the government's layout, lacking market mechanism guidance and flexibility for independent development, exhibiting "government failure".

Within a cluster, state-owned large enterprises often play a core role, monopolizing the entire industry and making it difficult to fully leverage the advantages of the cluster. There are two types of agglomeration methods for resource-based industries mentioned in the previous text: one is the usual industrial agglomeration method, where all upstream and downstream enterprises of resource-based industries gather in resource-based region A; Another approach is industrial agglomeration under the "zero resource economy", where upstream resource extraction enterprises gather in location A and downstream resource processing enterprises gather in location B to produce by purchasing raw materials from location A. To compare the impact of these two agglomeration methods.

3. CONCLUSION

Accurately evaluate and calculate the stock, structure, value, and potential of natural resources based on value theory and socio-economic laws. Only through reasonable resource accounting can resource property rights be clearly defined, and efficient utilization and industrial management of resources be achieved. From the game analysis above, the formation of resource-based industrial agglomeration is the

result of the comprehensive effect of regional effects and agglomeration effects. In addition, the agglomeration of resource-based industries is also influenced by the transportation costs of raw materials and products, as well as the differences in agglomeration effects between the two regions. To form a resource-based industrial agglomeration form, it is necessary to comprehensively consider the influence and constraints of these factors.

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Analysis of the Teaching Path of Animation Film Major Integrating Digital Visual Space in The Context of Digital Media Art

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Abstract: Actively build a scientific and perfect teaching system for digital media art design and animation, provide students with professional and scientific teaching content, and will be able to cultivate many high-level digital media animation professionals. This article mainly starts from the teaching status analysis of digital media art design animation specialty, focuses on the requirements of the teaching system of digital media art design animation specialty, and puts forward some implementation measures for scientifically constructing the teaching system. The article takes the animation design course as the starting point , according to the differences in the personnel training objectives and graduation requirements of the two majors, the differences in the teaching objectives, teaching content and teaching methods of the course in the two majors are analyzed.

Keywords: teaching path, animation film, digital visual space , digital media art

1. INTRODUCTION

Digital media plays an important role in modern people's production and life and is one of the main ways for people to obtain information and live entertainment. Digital media art design animation is an emerging major in the current social development process. Many domestic colleges and universities have gradually opened this major to cultivate professional design talents. The economic growth of the digital media industry is very rapid, and correspondingly, the demand for talents is gradually expanding. At present, the digital media majors opened in China are mainly divided into two directions: digital media technology and digital media art.

Digital media technology is a newly emerging major in computer majors combined with art design. The main goal is to cultivate composite students who have good digital content creativity and production capabilities, master technology and be able to proficiently produce media and digital art. talent. Digital media art is more often bid by art colleges based on design majors. The two majors belong to different disciplines, and the training directions and graduation requirements are also different. The digital media technology major confers engineering degrees, and generally recruits science and engineering students; while the digital media art generally accepts both arts and sciences, and most colleges and universities will conduct art exams at the same time. Under the current college model, some schools have two majors, digital media technology and digital media art.

In terms of curriculum setting, it is advisable to arrange more art and film and television courses in the freshman and sophomore year, more computer courses in the junior year, and make films throughout the semester of the senior year. The law of movement and animation insertion must be completed in the first grade. For the second-grade students majoring in animation, they should focus on the creation of original paintings, character design and background design. In terms of teaching, simply speaking from the perspective of the overall structure, the first and second grades are the stage of laying the foundation, and the third and fourth grades are the creative stage. In the setting of relevant courses, professional courses are introduced from the first semester to change the degree of emphasis on painting in the first grade in the past. At present, many colleges and universities are continuing this model. Due to the wide coverage of digital media art and the era of omni-media communication, the original theoretical and single course structure model can no longer adapt to the requirements of the new situation. The person in charge of the major of digital media art should stand in the perspective of media transformation, rethink the structure of the course, try to pay equal attention to technology and art, parallel traditional media, and new media courses, and combine text, pictures, and video expressions. Learning all-media course structure model.

The general guiding ideology of the digital media art professional course system: with the overall goal of cultivating high-quality application-oriented all-media digital art design talents with all-round development of morality, intelligence, and body, and taking the post ability requirements of all-media talents as a reference, it highlights practical training, teaching, Curriculum system with clear structure. In the current social development process, digital media has achieved good results, which can enrich people's leisure and entertainment life and broaden people's knowledge horizon. Many colleges and universities have gradually begun to major in digital media art design and animation, setting up scientific and reasonable course content, teaching students basic knowledge points, cultivating and exercising students' digital media art design ability and animation creation ability, and promoting students to grow into well-adapted digital media animation professional talents in the direction. In the curriculum setting of digital media art major, animation design course is a traditional professional course of art major.

2. THE PROPOSED METHODOLOGY

2.1 The Cultivation Characteristics of Digital Media Technology and Digital Media Art

Before the development of information technology, animation design was basically in the form of hand-painting, and digital media brought new forms of production and expression to art. In the animation design course of the digital media art major, digital media is used as a means and tool. The main task of the course is to train students to express creativity in the form of animation, focusing on the cultivation of content design. That is to say, the teaching of animation design in the major of digital media art should generally focus more on cultivating students' creative expression, content design and expression ability. In the course setting of the digital media technology major, the animation design course is also a professional course, but its main task is to enable students to fully understand the basic theories of computer animation algorithms and techniques, such as interpolation technology, motion linkage, and motion capture. Through many experiments and practice, gradually cultivate the ability of students to use computer animation production and processing. Relatively speaking, digital media technology majors should generally focus more on cultivating students' technical capabilities in animation production.

The direction of digital media art animation is also a new thing in the world, and this professional education in my country can be in line with international standards. Therefore, digital media art education should strengthen students' foreign language application ability based on the concept of internationalization. Bilingual teaching courses should be offered to undergraduates in grades one to four to strengthen the English ability of undergraduates, so that every student's English level can reach the ability to communicate and read English materials when they graduate. In terms of professional teaching, one is bilingual teaching as much as possible, and the other is that foreign teachers can be hired to teach digital media art courses instead of purely professional foreign language teaching. Weibo and WeChat have greatly changed the traditional form of information dissemination. In the era of micro-communication, this personalized pan-communication method has removed barriers and barriers between people and between information.

The distance between people has become closer than ever, and the transmission of information is more direct than ever. The advent of the WeChat era has made mobile phones a real social media. The establishment of the WeChat public account gives everyone the opportunity to become the main body of information dissemination and conduct personalized publicity to the outside world. Taking Huaihai Institute of Technology in Jiangsu as an example, it encourages every student majoring in digital media art to create its own official account and regularly publish various personal information to exercise the ability to operate the official account. The various forms of expression in the official account can also allow students to exercise their abilities in layout, text editing, video editing, and image processing. Students majoring in digital media art design animation need to have the basic quality in the development process of the current animation industry.

2.2 The professional practice path of animation film in digital visual space

Can be actively integrated into the animation production team to complete the creation activities of 2D and 3D animation. At the same time, they must have the ability of art design, original animation design, post-production synthesis and production, planning, directing, screenwriting, etc., and correspondingly use as a teaching goal, it will be able to gradually realize the goal of talent training. The digital media art major can adopt the "case teaching method". Case teaching is a cooperative teaching method in which teaching and learning are directly involved in discussing cases or difficult problems.

By collecting and arranging the works of different design concepts and different design methods, selecting representative cases, using this open and interactive new teaching method to fully attract students' attention and stimulate students' interest. Teachers should adjust their position in a timely manner, transform from a simple knowledge imparter to a guide for students to learn, guide and encourage students to observe, understand, think, and discuss independently, integrate cases with boring theoretical knowledge, and analyze the content of case works. Analyze the artistic expression techniques and design ideas, and finally learn to use digital media tools to imitate the realization process of the case. The college should regularly hire senior professors at home and abroad to provide face-to-face guidance throughout the process.

It can not only improve students' creative level, establish team awareness, but also an excellent test of teaching level, and play a good role in supervising students' future learning. In addition to the practical learning in this major, teachers should also establish practice bases outside the school, so that students can participate in social practice in a timely manner and gain an in-depth understanding of the development of the industry. At the same time, it also allows the society to keep abreast of students and promote talent competition and two-way selection. Students are required to go out of the campus and go to social TV stations, magazines, design companies, official account operating companies and other media units to exercise themselves. Students can carry out short-term cognitive practice, or practice exercises during winter and summer vacations.

Students practice and exercise in the emerging media unit, which can not only improve their business level, but also cultivate their professional quality. Complete teaching infrastructure can provide good prerequisites for carrying out various teaching activities scientifically and effectively, displaying teaching content in detail, and achieving teaching goals. At this stage, colleges and universities need to continuously increase investment in teaching infrastructure to build a professional teaching system for digital media art design and animation, so that students can have sufficient knowledge and learning conditions. A college actively introduces STYLOS paperless animation software, students can create on the computer drawing board, give full play to the advantages and functions of Internet technology, fully connect with traditional animation, connect high-tech and animation art, enhance the meaning of animation art, and effectively reduce the cost of animation production, to provide support for students to practice their animation skills well. In the digital media technology major, this course mainly assesses students' understanding, mastery, application, and analysis of related technologies.

However, to prevent students from thinking that the results are more important than the process, better promote students' learning and development, improve students' classroom participation, and cultivate comprehensive talents with comprehensive qualities, the assessment and evaluation of

courses should run through the entire process of project realization. It is not only necessary to fully consider the technical ability of students in the process of project implementation, but also consider the students' teamwork ability, sense of responsibility and artistic creativity contained in it.

Combining the application characteristics of various 3D animation software (Maya, Soflimage, 3DMAX), it also considers the latest animation development technology and 3D scanning modeling (Inspeck 3D scanner), motion sensor lens path calculation, and action multiplexing database technology. In addition, combined with the latest development direction of international and domestic 3D animation - the most popular virtual studio and virtual host in media such as film, television, and the Internet, as well as technologies such as content playback of network 3D animation, it realizes the common format of various software works conversion function to form a complete animation production system.

3. CONCLUSION

At present, the teaching work of digital media art design and animation major in colleges and universities is in progress. It is necessary to build a perfect and effective teaching system based on its own situation. Among them, it is necessary to focus on clarifying the teaching objectives and setting up teaching courses scientifically. The main reasons for this situation are late start and development. Fast, less investment. If this situation cannot be changed, it will seriously affect the quality of animation education in our country, and then endanger the production and production enterprises and even the entire industrial market. We look forward to seeing the formation, improvement, and development of an excellent digital media art design teaching system suitable for national conditions as soon as possible.

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Turquoise Jewelry Design Based on Modern Life Aesthetics

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Abstract: This paper discusses how to make use of the resource advantages of Turquoise production area in , Hubei Province, to integrate modern life aesthetic thinking into Turquoise jewelry design and creation from the aspects of culture and design, design and life, people and objects, combine traditional culture with modern life, and further explore the creation practice of Turquoise from the aesthetic characteristics of Turquoise, from the beauty of color, tangible beauty and intentional beauty. Integrating modern life aesthetic thinking into turquoise jewelry design and creation from the aspects of culture and design, design and life, people, and objects, and combining traditional culture with modern life. It aims to show the public more abundant beauty and cultural heritage of turquoise jewelry, to enhance the cultural value, artistic value and emotional value of turquoise jewelry, let culture give design power, let design promote the innovation and development of turquoise industry, and let the beauty of turquoise change public life.

Keywords: Turquoise Jewelry, Modern Life Aesthetics

1. INTRODUCTION

The English name of Turquoise is Turquoise, which means "Türkiye stone". It is said that Turquoise produced in ancient Persia was transported to Europe through Türkiye, hence its name. According to Shiya, "the name of Turquoise in China began in the Qing Dynasty, and the name of Dianzi was first seen in the Yuan Dynasty. The history of the Yuan Dynasty described Bidianzi or Yunlang Dianzi as Turquoise." He explained: "This is like a pine ball in shape and similar in color, so it is named."

Turquoise has a long history and is one of the oldest jades in the world. With the development of human civilization, a unique turquoise culture has formed. They carry the imprint of history and convey the cultural and cultural connotations that belong to cross eras. With the development of society, the progress of science and technology, and the change of human environment, we should also try to find the beauty of Turquoise from different perspectives. How the creation of turquoise jewelry interprets its own value at present, and as a carrier of culture to convey more profound social values, is worth our exploration and thinking.

As an ancient jade, turquoise plays an important role in the inheritance of history and culture and religious beliefs. In the national cultural heritage, the ancient court beads, headwear, ornaments, utensils and so on inlaid with Turquoise are still solemnly presented in the modern museum after a long history. They carry the imprint of history and convey the cross-era culture and connotation. With the development of society, the progress of science and technology, and the change of the humanistic environment, we should also try to analyze from different angles to find the beauty of turquoise materials and connotation. How the creation of turquoise jewelry interprets its own value at present, and as a carrier of culture to convey more profound social values, is worth our exploration and thinking.

China is a famous Turquoise producing area in the world, and County in Hubei Province occupies most turquoise resources. According to statistics, turquoise reserves in China account for about 70% of the world's reserves, and County in Shiyan accounts for 70% of the country's reserves. It is a rare Turquoise rich mining area in the world, known as the "hometown of Turquoise in China". Turquoise has high purity, good quality, large reserves, wide distribution, unique formation conditions, rich colors, unique patterns, and a long gem culture. It is said that Baofeng Town, County is the place where Nuwa is refining stones to mend the sky, so it adds a bit of legend to Turquoise in Hubei, and makes it popular in the market. However, as a special carrier of traditional jade culture, turquoise jewelry still has some problems, such as single product form, low artistic design level and inability to meet market demand, which restrict the development of turquoise industry and market. This brooch artwork aims to highlight the long drifting feeling of people sailing on the sea, as well as the strong longing and hope of their families for it.

When considering how to fully integrate and express the feelings and scenes in navigation, the author chooses to reduce the proportion of this Turquoise in the whole jewelry picture and take it as a point to play an extended role, to expand the scene design concept with tension. After the smoke rises, a semi curved sky design is connected, serving as the largest face of the jewelry. Through analyzing the artistic characteristics of Turquoise in Hubei Province, from three aspects of unique patterns, nodular growth texture and rich and varied colors, it is proposed to take turquoise patterns, texture, and color as the expression elements of jewelry design.

2. THE PROPOSED METHODOLOGY

2.1 The Relationship between Modern Life Aesthetics and Turquoise Jewelry Design

Based on the association and narrative expression of turquoise patterns, "Sailing on the Turquoise" associates the distinctive turquoise egg surface pattern with a ship in motion. The creation of the whole work highlights multi-level meanings through scene composition and narrative expression and tells the feelings and scenes of sailing. County is the world's largest producer of Turquoise, but it mainly relies on low-end mining and processing methods for production. Farmers or primary processors conduct rough processing first, and then

local private enterprises or small family workshops process semi-finished products and finished products. Its processing environment is simple, the instruments and equipment are outdated, the technology level is average, and the processing methods are outdated. It is simple and not carved, and it is natural.

Traditional Chinese art attaches great importance to the inner world, pays attention to implication, returns to nature, and pursues the philosophical realm of great music has the faintest notes. To solidify those simple and moving moments in life, what is needed is an artistic expression of "no carving". The cut, carved and polished Turquoise, bearing different forms of beauty and value, belongs to artificial creation, external addition, and change. The original Turquoise has its own unique aesthetic feeling. We call it "plain beauty" for this simple, essential, and inherent beauty. When designing it, the creator needs to have a feeling of advocating natural beauty.

The second work, "on the Turquoise, moment", combines the plain beauty of turquoise texture with the expression of emotion. It uses the plain, essence and inherent plain beauty of Turquoise raw stone itself to capture the moment when contemporary people express sincere feelings with each other. It interprets the beautiful picture of family, friendship, and love through jewelry creation, so that Turquoise bears the good qualities of sincerity, kindness, warmth, and purity that people place on it. The Turquoise raw stone is mainly processed and manufactured by manual or semi manual assembly line in the processes of peeling, cutting, polishing, shaping, carving, and polishing. The processing process is mainly based on the personal experience of workers, which leads to the modularization and simplification of the processed finished products, ignoring the characteristics of "applying skills according to materials" in the creation of Turquoise, reducing the beauty and added value of Turquoise, and greatly affecting the industrial development of Turquoise.

The author combines its unique texture with the contour features of the shape to express the ocean, earth, and mountains respectively in the design, all of which are natural environments that humans are familiar with and rely on for survival. We can see the mutual relationships and simple emotions between people in these familiar environments. Work 3 "On the Turquoise, Mushroom Fun" is mainly based on the association and interest expression of turquoise color. Through the color and structure, its further associates with the moss on the rock, and creates interesting mushroom jewelry works in different forms. The above Turquoise, as an important carrier to convey the jewelry design concept, is irreplaceable to a certain extent, showing the characteristics of Turquoise's own materials while presenting a moving landscape.

2.2 The Application of Modern Life Aesthetics in Turquoise Jewelry Design

Due to the scarcity of local design professionals, weak brand awareness and innovation awareness of enterprises, excessive imitation of traditional design styles or imitation of Western design styles in design, excessive reliance on the personal experience of workers in processing and production, lack of research on market and consumer needs, and lack of integration into local culture and characteristics, resulting in limited research and development conditions, slow design updates, serious product homogenization, and low technological content The lack of cultural connotation and low artistic value also directly affect the lagging development of Turquoise industry. Therefore, it is necessary to vigorously introduce design creativity and process technology talents, optimize product forms, improve process levels, and promote the healthy development of the market. On the far right is a freely growing mushroom, with several branches each growing leisurely in different directions. Their growth from the same root creates a balanced beauty in the overall picture.

The author combines the interesting growth patterns of different mushrooms with the expression of metal texture. The mushroom material is made of silver, echoing the original shape of Turquoise at the bottom. Just like each other's wonderful lives, the joy in the fields is worth savoring. The Turquoise excavated from various places in the southwest of the Americas first gathered in New Mexico and Chek Valley and formed a grinding processing stronghold in the 9th century, and then circulated to Central America and South America from here, because many rough tools for making Turquoise were found in this gathering place. There are also some indications that they not only obtain Turquoise by breaking the parent rock, but also obtain Turquoise by burning the parent rock for heating and then adding water to break the rock.

In this Turquoise processing place, a total of about 100000 tons of residual stones and related items were found, which can be imagined that the huge labor consumption at that time. Life aesthetics is the starting point for cultivating aesthetics, a way of life, based on the id's love for life, and a positive attitude towards life. "Life oriented aesthetics" and "aesthetic life" may be the common destination of eastern and western aesthetics. The real starting point of "life aesthetics" is the place where art is fully living. Turquoise decorations and inlaying techniques were once the first choice of natural gems and luxury raw materials valued by many ancient civilizations in the world.

They place different cultural, religious, and aesthetic meanings on this green decoration because of various cultural backgrounds and aspirations, and Turquoise and inlaying technology also bear the faith entrusted by these different groups and ancient civilizations, or are authoritative symbols associated with social and political systems. Turquoise, with its soft and delicate texture, pure and natural color, and unique iron line pattern, has become a variety of jades that enjoy both refined and popular tastes at home and abroad.

Turquoise is rich in colors, including sky blue, blue, blue-green, yellow green, green, light green, light green and other colors, as well as the varieties of unique patterns such as orchid, Sancai, spider web, water grass, water ripple, raindrop, etc. However, in China, many designers excessively pursue the design and creation of turquoise varieties with "high porcelain and high blue", thus ignoring the unique color and texture of Turquoise itself, resulting in the creation of works only highlighting the sense of color and decoration, lacking theme and ideology, which also led to the polarization of market raw materials.

3. CONCLUSION

Chinese jade articles and Chinese jade culture are the soul of national culture, and Turquoise is one of the "four famous jades" with a long history and cultural background. Among them, Hubei Turquoise is popular with many consumers because of its unique formation conditions and resource advantages, diverse varieties, good quality and rich colors. This article explores different jewelry design expression techniques, combines Turquoise's own characteristics and personal understanding to create and summarize, hoping that these jewelry works created by Turquoise can bring people

feelings and thoughts, so that Turquoise can find its own irreplaceable attributes in jewelry design expression, and carry richer connotation and culture.

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Innovative Research on Integrating Artificial Intelligence Technology into Urban Traffic Management

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Abstract: With the continuous progress of science and technology, the demand and application of artificial intelligence technology in the field of intelligent transportation are becoming higher and higher, especially with the increase in the number of urban vehicles, the corresponding urban traffic pressure is increasing. In some large cities, traffic is very congested, and traffic problems urgently need to be solved. The introduction of artificial intelligence technology can greatly improve urban transportation, fully utilize existing road facilities in the city, and make reasonable arrangements for urban transportation. This article first provides an overview of intelligent transportation and artificial intelligence, then discusses the current application status of artificial intelligence technology in urban intelligent transportation management. Finally, it analyzes the application trend of artificial intelligence technology in urban intelligent transportation management, hoping to provide reference for the development and research of intelligent transportation management.

Keywords: Information Technology , Translation Practice

1. INTRODUCTION

With the continuous development of China's economy, the transportation system is also constantly growing; Especially the transportation systems of aviation, highways, ports, public transportation, waterways, and rentals are developing faster and larger in scale, and their interconnections are becoming increasingly close. This requires higher requirements for transportation technology and information technology. In recent years, the country has invested heavily in urban construction (including transportation, security, urban management, etc.), but most of it has only spent more money on urban management, incorporating more high-tech equipment and electronic hardware. The actual data and information obtained are not considered as resources for urban management, but rather as so-called "technological tools". Such a city is like a city with well-developed limbs and a simple mind "vegetable", without a practical and flexible brain, the result is a large amount of data with few effects, a strong single point and a weak overall situation, and new technology with few implementations.

Smart transportation is an important application component of smart city construction, playing an important role in effectively solving urban transportation problems. In terms of smart transportation systems, it refers to a modern comprehensive transportation management system that effectively utilizes Internet of Things technology, cloud computing technology, big data technology, and artificial intelligence technology in the construction of urban transportation systems. Its efficient, real-time, and accurate management characteristics advantages enable it to effectively integrate various components of urban transportation, and on this basis, the improvement of transportation efficiency and the safety guarantee of people's travel should be achieved. When adverse situations occur, the traffic management or control system should call for appropriate intervention actions. The required system should be intelligent and able to operate dynamically based on driving dynamic data, which will be more interconnected than existing applications.

The goal of an integrated dynamic traffic management and information system (IDTMIS) is to develop a framework that includes all systems related to traffic management and control, thereby creating a multiuser, multidisciplinary traffic management system that integrates all applications and people involved in transportation. The purpose of this project is to understand the applicability of autonomy and distribution. Artificial intelligence systems in the field of transportation engineering. Improving the autonomy of intelligent systems in automation is a key factor, aimed at reducing the need for human intervention; Help people participate in other more complex programs and provide intelligent assistance in decision-making processes. At present, with the development of science and information technology, urban intelligent transportation has made significant progress and improvement compared to traditional transportation systems. In terms of urban public transportation, taxi systems, and long-distance passenger transportation, the level of intelligent informatization, passenger comfort, and supervision can meet most of the needs.

However, due to the continuous growth of urban population, increasingly complex transportation hubs, road networks, and route planning, as well as an increase in the number and types of public vehicles, many factors have led to pressure on urban transportation. So, in terms of the current situation, urban intelligent transportation cannot meet the needs of existing traffic management systems, enterprises, and urban populations. The main problems are as follows: the high-definition video monitoring system for urban intelligent transportation management refers to the use of internet technology to connect intelligent computers and road cameras together.

2. THE PROPOSED METHODOLOGY

2.1 The Application Status of Artificial Intelligence Technology in Urban Smart Traffic Management

This system is currently widely used in parking lots and high-speed toll stations, which can assist managers in effectively

managing and scheduling parking resources. It provides real-time information such as remaining parking spaces and guidance paths to drivers through electronic displays, reducing the time consumption of drivers searching for parking spaces, improving the convenience of drivers' use, and ensuring the standardization and simplicity of the charging process, At the same time, it can also reduce the emissions of car exhaust and noise pollution to a certain extent, and maintain good traffic management order. Expert systems are often used as decision-making systems for high-level management, while artificial neural networks, genetic algorithms, and artificial neural networks are often used as low-level control algorithms. These technologies can be used to optimize signal control, and they have significant advantages in studying the causes of congestion and formulating congestion plans.

However, due to the complexity of the transportation system, these AI technologies must be innovated and combined with the characteristics of the transportation system to improve AI technology and make it more suitable for the transportation system. Allowing the use of mainstream communication methods in ITS has certain benefits, as international standards open the way for a larger market, increase the competitive supply of interchangeable subsystems, and reduce communication costs. Since data transmission is not the main issue of this project, we have only provided some details regarding the requirements of the signal control system. These systems require regular, fast, and reliable transmission between different agents and small and frequent message subsystems, with high integrity. The communication type should be multicast (for a specified proxy group) or peer-to-peer (for a single proxy). An important concept of the object model is to strictly define the interfaces of objects. With this strict interface, runtime support can be obtained on different platforms.

At present, machine learning is the main exploration direction of artificial intelligence, which mainly includes the following three parts: large-scale machine learning, deep learning, and reinforcement learning. To cope with the increasing amount of data collection, transmission, storage, and processing in machine learning, it has become a necessary problem to extend existing algorithms to larger datasets. It is also the main application technology of intelligent transportation, which mainly uses machine learning algorithms, including clustering analysis, autoregressive models, maximum likelihood probability, and other technologies. Then, it scientifically classifies and calculates the traffic information of intelligent transportation, and effectively predicts short-term traffic conditions.

2.2 Road safety and accident prediction system

Statistical analysis mainly involves summarizing and ranking public transportation personnel and vehicles, while cluster analysis considers various situations and grasps the distribution of vehicle and passenger flow during different periods of public transportation, to facilitate transportation planning and operation scheduling. Only by doing well in machine learning and mastering various technologies and methods can we better serve urban intelligent transportation. The driverless car, also known as the autonomous vehicle, is an intelligent transportation tool that uses artificial intelligence technology and computer systems to achieve the purpose of driverless driving. Unmanned vehicles mainly utilize technologies such as computer vision, positioning, and intelligent path planning to achieve safe and autonomous operation under unmanned driving conditions. Currently, there are mainly two types of autonomous driving: semi-automatic driving and fully automatic driving. Semi-automatic driving has certain automation functions, but it also requires the driver to operate.

Fully automatic driving does not require the driver to operate and can achieve autonomous operation of various functions. In recent years, with the deepening development of artificial intelligence technology, the production of autonomous vehicles has also been increasing year by year. Some internet companies have utilized their technological and capital advantages to launch vehicle networking products based on internet thinking. While deepening the field of autonomous driving, it will also have a very good promoting effect on the orderly development of transportation for urban smart transportation construction, it can minimize the occurrence of road traffic and transportation safety accidents to the greatest extent possible. Finally, communication was also held with several other agents from nearby intersections, urban traffic control centers, and other control centers (such as bus route guidance). And the operator. The controller estimates states soon, calculates signal plans to support these states, checks with other agents, and plans signal operations if approved.

Single node controllers typically use constraint based mathematical programming methods to evaluate and optimize cycles. In arterial and network systems, this topic becomes more complex due to coordination and synchronization. Agents coordinate and choose between conflicting actions and synchronized actions. In addition, as decisions are not centrally controlled, agents independently choose the most efficient decision from the available options. With the continuous expansion of the urban transportation network, the application of artificial intelligence in traffic monitoring continues to be promoted. Intelligent traffic monitoring systems link cameras on various road sections of the city through intelligent computers and the Internet as a medium and analyze the road traffic operation in each region through image detection and recognition technology, Then, through the intelligent transportation system, significant traffic entrances and exits in the entire city can be scientifically detected and monitored in real time. The number of vehicles entering and exiting the city, as well as the traffic flow of each road in the city, the saturation of vehicles on the main, secondary, and branch roads, as well as the traffic communication lights on the road, can be monitored in real time, including the security situation.

And intelligently adjust the traffic lights to achieve intelligent traffic management and regulation, ultimately achieving the goal of alleviating traffic congestion. In addition, the intelligent traffic monitoring system is also applied to relatively simple monitoring facilities such as parking lots, urban public safety, high-speed intersection toll stations, and intersection vehicle capture. With the improvement of artificial intelligence technology, the intelligent monitoring system can better cooperate with traffic management and achieve the effect of dynamic congestion charging on urban roads.

3. CONCLUSION

With the rapid development of China's economy, the process of urbanization continues to accelerate, and urban traffic pressure continues to increase. Developing faster and more efficient intelligent transportation systems is an effective measure to adapt to China's economic and social development. To some extent, artificial intelligence has alleviated traffic

congestion and facilitated people's travel. However, there is still much room for improvement in the application of artificial intelligence technology in urban intelligent transportation, and it is necessary to conduct in-depth research and scientific application to better serve people. It has alleviated the pressure on transportation roads, shortened the travel time of citizens, and accelerated the development of social economy. However, artificial intelligence still needs continuous development and improvement, striving to improve problems such as insufficient transportation planning, insufficient adaptability of public transportation systems, and mismatched supply and demand of parking facilities in the field of intelligent transportation.

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Application of Doppler Radar Data in Rainstorm Forecast

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Abstract: The influence of time step, grid size, rain intensity threshold and other parameter changes in TREC method on tracking results is discussed, and the TREC vector field is smoothed, which to a certain extent reduces some obviously wrong vectors caused by ground object echoes and echo gradient changes in the TREC vector field, obtains a more continuous vector field, and uses the vector field obtained to predict the approaching rainstorm. The radar echo characteristics of mesoscale systems in the rainstorm process, such as low-level jet, warm advection, warm shear, cold shear, and headwind area, are analyzed; Through their identification and comparison with precipitation characteristics and rainstorm falling areas, it is shown that these mesoscale systems have clear indication significance in the near forecast of rainstorm.

Keywords: Doppler Radar, rainstorm Forecast

1. INTRODUCTION

Doppler weather radar data has high temporal and spatial resolution and plays an important role in mesoscale catastrophic weather research and near prediction. In the mature time zone of the headwind zone, the color gradually transitions from light to deep, and the wind speed gradually transitions from small to large according to the color hierarchy, which is fundamentally different from velocity ambiguity. Speed blurring is usually a sudden change in warm and cold tones, with the negative (positive) speed maximum zone appearing in the positive (negative) speed maximum zone, while the upwind zone is another type of speed zone appearing in the speed zone. A standard that can be used for radar detection and analysis is a low-level strong wind speed zone with a horizontal distance of ≥ 80km, an altitude below 3000m, a time scale of ≥ 2 hours, a horizontal wind speed of ≥ 10m · s-1, and consistent wind directions.

The time scale here serves as an additional condition primarily to distinguish low-level jet streams from instantaneous strong winds after warm shear. In addition, the low-level jet can cross a height of 3000m and connect with the hollow jet. The Shanghai Meteorological Bureau has also established a short-term forecast system for severe convective weather in the Shanghai area based on the mesoscale numerical prediction model prediction products and a human-machine interaction platform. The system integrates satellite, radar, automatic stations, and high-altitude ground observation data, and combines the experience of forecasters. The extrapolation method for the movement of radar echoes assumes that the movement of radar echoes is guided by environmental wind fields, and there is no significant sudden change in the environmental wind field within 60 minutes.

Therefore, by determining the environmental guidance wind field, an effective difference format can be used to extrapolate and predict radar echoes. The above two methods are used to obtain the movement vector of the radar echo at the current time, and the two vectors are assumed to be the guiding wind vector of the radar echo movement respectively, to realize the extrapolation prediction of the radar echo in Lagrange coordinates. There is an ENE-WSW weak echo zone located approximately 15km south of Baise, with a small range and weak intensity of individual echoes within the zone. The height is generally 6-7km, but the highest is only 9km. The connection between the individual echoes is not tight, and the echo zone moves southward at a speed of approximately 16-17km per hour.

Compared with the Radial velocity map at that time, we can see that there is an "L" shaped zero velocity line. This obvious feature, combined with the echo belt trend, can determine that the echo belt is a frontal cloud belt. The frontal echo zone moves southward into the convergence flow field and develops. The strength and width of convection cell in the zone increase, and the moving direction gradually tends to be parallel to the trend of the zone, which makes the echo zone width increase significantly, and the southward moving speed gradually slows down to about 10km per hour, which is very conducive to the occurrence of heavy rainfall. Short term heavy rainstorm occurs in the front of the upwind zone and the region with the largest Radial velocity convergence. The so-called upwind zone means that there is a positive velocity zone in the negative velocity zone of Radial velocity or a negative velocity zone in the positive velocity zone, and there is a zero-velocity transition zone between the two.

Who includes who among them is influenced by factors such as local environmental wind and antenna elevation. Due to the lack of corresponding ground level wind observation data, it is still difficult to determine the properties of its mesoscale system. Since the forecast object is rainstorm, four PPI data with lower elevation angle are selected, and the data at the selected altitude are obtained by Linear interpolation using the height measurement formula. For radar range.

2. THE PROPOSED METHODOLOGY

2.1 The working method of Doppler radar

There are two echo bands in the northern part of Baise. The echo band in the north descends from the northeast of Guizhou to Yunnan, while the echo band in the south is a discontinuous band formed during the northward uplift of convective echo cells. The two echo bands move in opposite directions and converge in the northwest of Tianlin. At 22:00, the two echo bands merge into one, forming an E-W wide mixed layered strip echo. The echo band has a bandwidth of about 80km, a band length of more than 350km, and the echo intensity is mostly less than 40dBZ. The echo height is

generally 8-10km. On the profile map, the echoes are arranged tightly, in clusters, and the top of the echo is a multi-peak structure. In the southern part of the station, there is continuous convective generation and development, merging to form a large area of echoes and merging into the echo zone during northward movement, resulting in the development of the echo zone and the expansion of the precipitation area.

Near the center of the low-level jet (slightly to the left), it also indicates the center of the rainstorm. In addition, the time when the two SE low-level jets end, i.e., when the low-level jet reaches its peak and transforms into weaker airflow, is the time when the two periods of heavy precipitation begin; This largely reflects the relationship between the oscillation of low-level jet streams and heavy precipitation. To eliminate some incorrect movement directions and improve the continuity of the TREC vector field, the following two steps were taken for continuity check: if the average direction of a TREC vector differs by more than 20 from its surrounding vector, the average vector of 8 points around it is used to replace the TREC vector, and the zero vector also adopts this method.

Objectively analyze the TREC vector to obtain a continuous displacement vector field. The scoring results of Scheme 2 indicate that when the forecast duration is 30 minutes, the ICS at a height of 2.0 km among the eight altitudes is the highest, accounting for 78.64%, followed by 3.0 and 3.5 km. When the forecast duration is 60 minutes, the three best predicted heights are 2.0, 2.5, and 3.0 km, respectively.

From this, the prediction effect of Scheme 2 at altitudes of 2.0-3.5km is better than other altitudes. The combined effect of multiple mesoscale systems is a key factor contributing to this large-scale heavy rainfall. The two echo belts merged and developed and maintained for a long time, resulting in rainstorm in the north of Baise and heavy rainstorm in some areas. The heavy rainstorm is distributed near the convergence area of the two echo belts, namely the southeast of Longlin, the west and north of Tianlin, Lingyun, the south of Leye and the northwest of Baise. Among them, 7 of the 10 towns in Lingyun County located in the strong echo area of the echo belt suffered heavy rainstorm, and the 24-hour rainfall in Lingyun County seat was 193.8mm.

In addition, due to the continuous generation, development, and merger of convection in the southern region, a large area of echo has moved northward, and moderate to heavy rain and local rainstorm weather have also occurred. Warm shear has a prediction time limit of 0-3 hours for heavy precipitation; After one hour of high-level cold shear, the heavy precipitation stopped and later turned into weak precipitation within the air mass. In the extrapolation forecast of typhoon rainstorm, the semi Lagrangian one-dimensional advection formula is respectively applied to the u and v components of the TREC vector, and the time step is 6 minutes. The displacement on the u and v components is calculated respectively, and the forecast results are output once every 6 minutes. The rain intensity value, direction, and speed on each grid point currently are used as the integral of the next continuous time.

2.2 Sensitivity test and tracking results of parameters

The VAD method inverts the horizontal wind of each layer as a moving vector for echo extrapolation. Within a prediction duration of 60 minutes, the overall movement trend of the radar echo can be predicted, and the predicted echo range and position are in good agreement with the actual situation, making it suitable for monitoring the movement and evolution of convective weather systems near the observation station. A prominent feature of the VPPI Radial velocity field is the continuous warm advection in the lower layer. From 00:35 to 11:09 on the 12th, the VPPI Radial velocity field can be easily identified. The zero-velocity line has an s-shaped structure, and through the station, the wind direction from low to high turns from SE to S to SW, that is, the wind direction turns clockwise with height. This feature is like the simulated Doppler velocity image of wind turning clockwise with height in a uniform wind field, indicating the existence of warm advection.

By comparing predicted images with radar measured images, a qualitative description of the predicted results can be obtained, and quantitative analysis of the predicted results can also be conducted. Compare the predicted data with the actual radar observation data at the prediction time one by one. If both the measured and predicted grid data are greater than the threshold, the grid point is considered successful. If the measured grid data is greater than the threshold but the predicted grid data is less than the threshold, the grid point is considered a false alarm. If the measured grid data is less than the threshold but the predicted grid data is greater than the threshold, the grid point is considered a false alarm. The radar echo positions obtained within the next 60 minutes are basically consistent with the actual radar situation at the corresponding time, and the prediction scores of the two are relatively close at certain altitudes, and the altitude layer with the best prediction effect corresponds well; From two extrapolation experiments, it was found that the key to the effectiveness of extrapolation is related to the vertical distribution of horizontal winds in precipitation echoes, and cannot be limited to only 2.5-3.0 km.

Cloud microphysical products provide 24-hour forecast fields for 10 microphysical quantities at altitudes such as 600hPa, 550hPa, 500hPa, and 400hPa. These products to some extent fill the gap in cloud microphysical detection in current conventional meteorological observation projects and provide important cloud microphysical reference basis for weather modification operations in our region. The size of the rectangular grid on radar images is constrained by two factors. If the grid is too small, stable correlation coefficients cannot be obtained due to the lack of data. If the rectangular grid is too large, it provides an average moving vector, which can easily smooth out some small-scale changes.

Taking Typhoon Kanu in 2005 as an example, the influence of rectangular grids of different sizes on the TREC vector field was analyzed. The selected rectangular grid sizes were 15km~15km, 20km~20km, and 30km~30km. From the TREC vector field, it can reflect the circulation characteristics of typhoons. However, the rectangular grid with a 15km vector field has more chaotic directions in the circulation, and the circulation of the other two vector fields is smoother. From the rectangular grid with a 20km vector field, the merging characteristics of the strong echo area can be seen, while the rectangular grid with a 30km vector field smoothest out this feature.

3. CONCLUSION

To study the Kinematics and dynamic characteristics of Convection cell movement, Doppler radar reflectivity factor and Radial velocity data are comprehensively used to study the echo proximity prediction algorithm. The vertical profile of wind retrieved by technology is an important supplementary tool for studying mesoscale systems, which

can more intuitively display the local evolution characteristics of the mesoscale systems. The large-scale rainstorm is more represented by the comprehensive effect of the above mesoscale system; All mesoscale systems in the rainstorm area have a clear indication role in the approaching forecast of rainstorm.

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Analysis on the Application of Expanding Training in Physical Education Teaching to Improve the Psychological Quality of College Students

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Abstract: Most college students living in the 20th century were only children, so they received a lot of care in their daily lives and studies. Some students even received indulgence from their parents from a young age. It is precisely because of this growth environment that their psychological resilience became poor, and they did not have a good mentality when facing setbacks. In this situation, if schools want to improve students' psychological quality, it is far from enough for schools to rely solely on ideological education to help college students overcome psychological barriers and improve their resilience. Therefore, this article elaborates on the origin and development of outward-bound training, analyzes the drawbacks of using outward bound training in current physical education teaching in universities through case studies, and analyzes the measures to improve the psychological quality of college students through outward bound training.

Keywords: Expanding Training, Physical Education Teaching, Psychological Quality, College Students

1. INTRODUCTION

In this era of rapid economic development, society has high requirements for everyone. As the main body of the times, college students face the problem of finding a job after graduating from university. These are a relatively painful process for newly graduated college students, which requires them to possess certain psychological qualities in order to withstand social discrimination and the failures they must experience, it's like failing an interview, etc. Therefore, during college, in addition to learning relevant professional knowledge, college students should also improve their psychological quality during the learning process, to better adapt to the development and changes of society and shoulder the sense of mission of social development.

In order to better improve the psychological quality of college students, the author has also made the following analysis on the use of outward-bound training in physical education teaching to improve the psychological quality of college students. 120 students were divided into four teaching classes, and the proportion of male and female students in the teaching class was the same. Investigate the changes in psychological quality and social adaptability of college students before and after participating in outward bound training. Expansion training programs include outdoor and field training, among which field training refers to the use of physical education classes for simple projects that do not require equipment, lasting for two weeks, twice a week. This training was introduced to China in 1995 and developed rapidly. It was highly praised by various social classes in China and gradually included in daily training by government agencies, foreign enterprises, and modern enterprises.

At the end of the 20th century, experiential training was first introduced by Tsinghua University into the teaching system of MBA and EMBA. Its expansion training mainly consists of three parts: on-site, outdoor, and water, each with different content. Modern outward-bound training uses sports activities as a carrier and outward bound training as the main line of teaching, guiding students' psychological cognition to develop in the correct direction. It is of great significance for developing potential, enhancing teamwork spirit, and emotional regulation ability. The requirements for teachers are high, and they need to be responsible for organizing, guiding, and ensuring the safety of students. Although teachers may not participate in training activities, planning, arranging, and summarizing tasks for training activities is inevitable.

In major universities in China, physical education teachers have rich teaching experience and sufficient ability to organize related sports activities. It is believed that they can also complete the task of expanding training for students in a short period of time. Therefore, the feasibility of outward-bound training in college physical education teaching is high, and teachers should actively introduce it to enhance students' enthusiasm for exercise. Expansion training can effectively improve the mental health level of college students, and there are significant changes in the four factors of somatization, depression, anxiety, and interpersonal sensitivity before and after the experiment. Expanding training can also effectively improve the social adaptability of college students.

2. THE PROPOSED METHODOLOGY

2.1 The Feasibility of Expanding Training in College Physical Education Teaching

After a semester of experimentation, the number of college students with maladaptation significantly decreased, while the number of students with average and strong social adaptability significantly increased. The main evaluation of the psychological quality of college students is mainly through a comprehensive evaluation of their learning and life, including their self-confidence, sense of responsibility, frustration ability, willpower, self-awareness level, independence, and other aspects. Psychological quality is an individual, tendency, initiative, stable thinking and behavior of college students, but this performance is not fixed, it will change over time or through changes in college students' selves, so the stability referred to here is relative.

According to a large amount of data, the results of "depression" factors among college students after extended training are far lower than the average level before training, with a significant difference, greater than PG0.05. The potential significance of incorporating extension training into physical education experiments is also to enable physical education to return to its original and natural state, change the problem of traditional physical education teaching being too regular and institutionalized, improve students' sense of efficacy, and help them overcome the difficulty of "depression". Expansion training places particular emphasis on cultivating students' subjective initiative, cooperative spirit, and creative spirit. This not only enhances students' enthusiasm but also helps them tap into their own potential. The training content is highly challenging and stimulating, in line with the personality characteristics of modern college students.

Traditional physical education teaching places more emphasis on cultivating students' learning of relevant theoretical knowledge. In terms of physical activities, excessive emphasis is placed on students' physical performance, physical skills, and safety issues, which undermines their enthusiasm for learning physical education. After the implementation of higher education reform, although teachers' teaching concepts have changed to a certain extent, the teacher centered teaching model still exists, and students' learning subject status is not valued, resulting in low learning enthusiasm of students. The teachers attach importance to the introduction of outward-bound training in college physical education, provide students with various forms of sports activities, make them feel happy in the process of sports activities, and the distance between teachers and students is constantly shortened.

Expansion training is completely different from traditional teaching concepts. The teaching model of teacher demonstration and students drawing pictures from gourds has been completely overturned, and there are various forms of sports activities. Students can participate in them according to their own methods, continuously encourage and educate themselves, improve their quality education level and physical fitness, and lay a solid foundation for future development. Expansion training is directly aimed at cultivating mental health and social adaptability and is highly welcomed by students. Students' enthusiasm and initiative in attending physical education classes have also been improved. Therefore, introducing outward bound training into physical education classes in universities is a reform and innovation of traditional physical education classes. It can enrich the content of physical education classes, enhance the practicality and interest of physical education classes, broaden the functions of physical education classes, and has profound significance for the reform of physical education classes in universities in China. In terms of the current psychological quality of college students, some of them have very poor psychological quality, just like there have been cases of college students harming others and themselves in higher education institutions before.

2.2 Applying Expanding Training to Improve the Psychological Quality of College Students in Physical Education Teaching

For example, in 2006, a graduate student at Peking University chose to commit suicide because he couldn't bear the pressure of his studies; In 2007, there was an Affair of the Poisons of the Mining University; In 2008, a student from the University of Political Science and Law committed murder with a knife; Affair of the Poisons of postgraduates of Fudan University in 2013. The occurrence of these events indicates that college students have poor psychological quality and are unable to regulate the impact of negative emotions. Therefore, it is necessary to improve the psychological quality of college students. After three months of outward-bound training, we have provided effective measurement questionnaires developed by the Beijing research and development center for college students who participate in outward bound training. Generally, if students can achieve an 86 score, it indicates that they have exceptional social adaptability, good psychological development, a good sense of teamwork, and are able to adapt well to workplace life.

If the score is below 70, it indicates that the college student has poor adaptability in society. Any questions that are unclear in the questionnaire should be promptly consulted with a mentor or friend. The introduction of outward-bound training can effectively strengthen this point. Students need to face challenges with high difficulty, endure balanced and tense environments, gradually develop strong willpower, think carefully about problems, and effectively improve their psychological quality. In addition, in outward bound training, there are some team cooperation projects that can encourage students to communicate with each other, narrow the distance between each other, form a collective, and cultivate students' collective cooperation spirit. Expansion training is not just about games and entertainment. High quality training courses require teachers to possess a variety of outdoor professional skills, understand professional knowledge such as mountaineering, wilderness survival, and mountain rescue, and have a background in management, psychology, and other aspects of knowledge and certain management experience, which are not fully possessed by physical education teachers in universities in their own knowledge structure.

Therefore, the establishment of this course requires physical education teachers' own learning and improvement, and sufficient knowledge preparation for the training course design content. In China's universities, the development of physical education teaching is relatively backward, and its educational methods and content have great limitations. In the teaching process, most of the training is focused on physical fitness and skills, and there is no relevant training or training for the psychological quality of college students. Therefore, if we want to use expansion training in physical education teaching to improve the psychological quality of college students, teachers need to be in the training process, provide targeted training arrangements based on students' personality traits.

Sports games can be said to be a special educational method in the process of physical education teaching. It is a teaching method created under the new form of education that comprehensively considers the characteristics and needs of students. If it can be scientifically and reasonably applied, it will play a positive role in the development of students' physiological and psychological aspects, but it does not mean that using sports games in physical education teaching can mechanically determine and promote students' physical and mental development.

Students actively participate in sports activities, interact with classmates, understand, and promote each other, and continuously learn to promote their physical and mental health development.

3. CONCLUSION

In summary, the introduction of outward-bound training in college physical education teaching is very necessary. In fact, outward bound training has high feasibility in college physical education teaching. Teachers should recognize this and pay attention to the importance of outward-bound training, such as effectively improving students' psychological quality, and actively apply it in college physical education teaching. The requirements for relevant teachers or training instructors are relatively high. Therefore, in the process of using outward bound training, relevant personnel must have a relevant understanding of outward-bound training and make sufficient preparations, in order to better realize the value of outward bound training. In summary, the application of outward-bound training in physical education teaching can effectively improve the psychological quality of college students.

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Exploring Multicultural Education and Cross-cultural Education in the Context of Globalization

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Abstract: The traditional concept of cross-cultural education views cross-cultural communication as the adaptation of one culture to another. This cross-cultural communication perspective is a one-way, static, and submissive perspective, which is difficult to adapt to the process of globalization and the situation of multicultural exchange. Based on the study of the relationship between cross-cultural cognition and intercultural communication competence cultivation, this paper believes that under the multicultural background, by investigating the understanding and attitude of overseas students from countries along the "the Belt and Road" towards Chinese culture and cultural courses, it summarizes the problems and status quo faced by the dissemination of Chinese traditional culture, and proposes targeted measures to improve teaching methods and broaden cultural Pathogen transmission, Intended to enhance the ability and effectiveness of international Chinese language education in disseminating traditional Chinese culture.

Keywords: Multicultural Education, i Cross cultural Education, Globalization

1. INTRODUCTION

The world today is gradually forming a global village, with increasingly strengthened exchanges between different ethnic groups and countries, and increasingly extensive and in-depth exchanges between different ethnic groups and countries. An era of multicultural integration is approaching. Many fields, especially science and technology, as well as economic and cultural fields, are showing a trend of convergence. The process of global integration forces us to reflect on our cultural identity and roles. After joining the World Trade Organization, China has become increasingly involved in global affairs and gradually integrated into the wave of globalization. This also requires that our cross-cultural communication should no longer rest on traditional concepts.

The questionnaire questions cover aspects such as students' nationality, interest and views on Chinese culture, and their vision for Chinese culture courses. A total of 82 questionnaires were distributed, and 82 valid responses were collected. The statistical system automatically generated the answers, which were then rechecked to ensure statistical accuracy. Multicultural education is to enable minority students or immigrant students to enjoy equal educational opportunities, understand their own national culture and adapt to the culture of other nations to better survive; The purpose of cross-cultural education is to better understand the culture of other countries or ethnic groups to hope for better communication with them.

Socrates is an ancient Greek philosopher. His famous saying "Know Yourself" has become the driving force for human beings to explore the true meaning of their own lives for many years. It is also the basis for people to understand and respect each other in different cultural backgrounds. The Socrates program proposed by the European Union is based on this idea, aiming to explore and utilize the rich cultural and educational resources of various countries, integrate, and connect relevant cross-border educational exchange projects through vertical and horizontal scale plans, strengthen the "European domain" awareness, and cultivate active global citizens. Understanding cross-cultural communication as simply a leap between local culture and target language culture has clearly fallen behind the development of global economy and society.

Based on exploring the correlation between cross-cultural cognition and cross-cultural communication ability, this article proposes that participants in cross-cultural communication must clarify the subjectivity of cultural interaction, and establish dynamic cross-cultural communication concepts on this basis, to cultivate and improve their own cross-cultural communication ability. By analyzing the survey results, it is concluded that there are the following current situations and problems in cultural dissemination in international Chinese language education.

(1) Most international students are in the stage of being new to China and having a sense of freshness and curiosity about Chinese culture. The college bears the responsibility of disseminating excellent traditional Chinese culture and Weifang folk culture.

(2) Classroom, internet, and television are the main ways for students to understand Chinese culture. However, making Chinese friends and reading books are less common, and the channels are relatively limited.

(3) International students hope to hold more cultural activities in the classroom and look forward to going out on campus for cultural experiences. In the process of globalization, rapidly flowing talents all have a certain cultural foundation, and in the process of mobility, they can consciously or unconsciously bring their own culture (the culture of their own nation) into other cultures, absorb them, and form cultural exchanges.

2. THE PROPOSED METHODOLOGY

2.1 Strategies for achieving cross-cultural communication in the context of globalization.

Talent mobility in the context of globalization is also an important form of cross-cultural education. To achieve this

goal, we plan to support innovative, multilateral, and student-centered projects, and carry out effective, long-term, transatlantic cooperation in the field of higher education and vocational training; It also supports international education projects that promote new forms of cooperation between the European Community and the United States, and supports research and lectures on European Community affairs and European American relations through the Fulbright EU Foundation project. The so-called knowledge culture refers to the cultural background knowledge that does not have a direct impact on the understanding and use of a certain word or sentence when people from two different cultural backgrounds engage in communication. The so-called communicative culture refers to people influenced by two different cultural backgrounds who misunderstand due to a lack of cultural background knowledge about a certain word or sentence during communication.

This cultural knowledge that directly affects communication is called communicative culture. In class cultural teaching is mainly based on hands-on experience, and includes questioning, discussion, and other links to improve students' cultural understanding ability. Strengthen intra school cooperation and allow Chinese and foreign students to enter each other's classrooms. For example, foreign students follow Chinese students to learn Chinese traditional songs and dances to stimulate their interest in Chinese literature and art. At the college level, an off campus cultural experience platform should be provided. The office of Weifang International Kite Festival held the activity of "I take kites to visit Weifang", and the college organized overseas students to fly kites in cultural attractions such as Qingzhou Gongyuan, Shenfu Street, My Garden, Fucai Gate Tower, etc. International students have experienced kite culture and develop a strong interest in traditional cultures such as history, architecture, and geography, achieving good results in cultural dissemination. Strengthen multicultural and cross-cultural education.

Driven by modern technology, the process of globalization has accelerated, with frequent cultural exchanges and personnel mobility. Each country or region is home to people of different races and cultural backgrounds, which has led to a diversified population structure. Various cultures and values need to respect each other to ensure social stability and promote cultural exchange and development. The above international education cooperation plans reflect the geographical environment, historical processes, diverse cultures, economic development, and political landscape around the world. They also reflect contemporary people's ways of thinking and values, as well as their understanding and attitudes towards education. They are the product of social upheaval. Since the 1960s, people have gradually realized that economic development is closely related to political consciousness and social upheaval. To firmly occupy a place in the turbulent international situation, multicultural communication requires us to establish a sense of global cultural exchange and integration.

2.2 The Enlightenment of Multicultural Education and Cross-cultural Education on Education in China

Due to the dynamic and uncertain nature of communication, cross-cultural communication must pay attention to relevant factors such as communication location, time, language used, participant identity, etc., and cannot passively adapt to a particular culture according to traditional perspectives. For example, there are many English-speaking countries in the world, and although English is widely used, their cultural traditions are different and even vastly different. Chinese language teachers should strengthen their awareness of combining language and cultural teaching. Appropriate use of situational teaching methods to enable students to acquire knowledge, skills, and experiences.

For example, when learning Chinese "daily greetings" communication culture, students are asked to perform the communication process of different roles in specific scenes. Familiar people can ask questions such as "Have you eaten yet" and "Where have you been" to deepen students' understanding of Chinese culture. Pay attention to extending cultural knowledge, such as when learning the expression of "date", introducing traditional holiday knowledge, setting holiday scenes, and allowing students to experience Chinese festivals. From the practice of multicultural and cross-cultural education in various countries or regions around the world, corresponding policy support is an important guarantee for the implementation and effective implementation of multicultural and cross-cultural education. To promote multicultural and cross-cultural education, corresponding policies must be formulated, and of course, the formulation of policies should be based on the research of relevant theories. In the era of multiculturalism, cross-cultural communication is inevitably diverse.

So, how to achieve both parties' goals in the communication process? Taking English teaching in China as an example, is it in line with mainstream British and American culture or the cultures of both parties in communication? How can both parties predict whether the entire cross-cultural communication process follows the culture of the other party, the culture of the target language, or their own culture? Chinese traditional culture is vast and profound, and when choosing teaching content, certain principles should be followed: firstly, content that reflects the essence of Chinese traditional culture; secondly, projects that still exist in contemporary and social contexts, or projects that have a significant impact on contemporary people's thinking patterns and lifestyles; thirdly, regional unique culture. Weifang Vocational College has selected Paper Cuttings, traditional Chinese painting, calligraphy, tea art, Peking Opera facial makeup, Taijiquan, traditional festivals, traditional food, traditional clothing, Weifang Intangible cultural heritage, etc. as the content of traditional culture communication.

Multicultural and cross-cultural education must be localized, and curriculum construction strengthened. From the practice of multicultural education and cross-cultural education, each country or region pays attention to localization issues when implementing it, strengthens corresponding curriculum construction, and attempts to solve the main problems faced by the country, such as race issues in the United States and ethnic issues in Canada. They all add relevant educational content to the curriculum of primary and secondary schools and even universities. China must make corresponding adjustments to the concepts, themes, and value orientations of multicultural and cross-cultural education based on its national conditions. With the strong advocacy and active efforts of UNESCO, multicultural education has been responded to in many countries and regions around the world and has begun to be implemented in the formulation of educational policies, research on educational theories, and exploration of educational practices. Whether it is the determination of goals, the selection of content, or the implementation and evaluation of management, educational development is no longer based on a single mainstream

culture and disregards the existence and value of other cultures.

3. CONCLUSION

Currently, the process of globalization is accelerating, and multicultural communication is constantly penetrating various fields of social life. We should have a multicultural awareness and concept, which not only cultivates students' multicultural cognitive abilities, but also cultivates dynamic cross-cultural communication abilities, emphasizing the subjectivity and cultural connotations of local culture. Cross cultural communication in the context of globalization should not only be a simple leap, but also a process of mutual consultation, coordination, and adaptation to the development of communication. Learn to observe and examine national cultures from the perspective of their own culture and other cultures, view the relationship between their own culture and different cultures with the concept of multiculturalism, eliminate cultural prejudice, enhance the national self-esteem and self-confidence of minority students, make the curriculum content better reflect the differences between regions, cultures, and students, and improve the efficiency of education.

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Intelligent Effect Evaluation Platform of Sports Training Based on Extreme Respiratory Rate Detection Equipment

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Abstract:In this paper, a non-contact respiratory rate measurement method based on RGB video information is proposed. The method is divided into four steps: first, perform spatial filtering and noise reduction on each frame image of the input video; then use the grayscale compensation algorithm to perform grayscale compensation on the denoised image. Set the magnitude of learning depth, from quantitative analysis and qualitative analysis. From two perspectives, quantitatively analyze the impact ability of the investment index; establish a judgment matrix, determine the weight coefficient of the grading evaluation index system, set the evaluation result consistency index, and test the evaluation results. A hardware interface circuit is designed by using a thermistor to detect the heat of each exhaled gas through a bridge. And the temperature information is transmitted to the receiving device by wireless transmission, and processed by the single chip microcomputer.

Keywords: Intelligent Effect Evaluation Platform, Sports Training, Extreme Respiratory Rate, Detection Equipment

1. INTRODUCTION

Sports, as an important way for college students to strengthen their bodies, undertakes the important task of enhancing students' physique and shaping their physique. There is a complex and subtle relationship between public sports resources such as venues and equipment and the sports needs of college students [1]. In various scenarios such as search and rescue, monitoring, and elderly care, there is considerable demand for non-contact measurement of human vital signs. Typical human vital sign information includes body temperature, respiratory rate [2], and the like. Among them, body temperature information can be obtained through infrared cameras [3-4]. There are many data and corresponding analysis functions that can truly reflect the physical fitness of middle school students.

Through research, it is found that most middle schools basically use manual methods or Excel tables to complete the statistical data required by physical education and health teaching, which is not conducive to the preservation of data. Learning diversified sports [5], such as aerobics, table tennis, volleyball, taekwondo and yoga, etc. The enthusiasm of sports enriches students' extracurricular activities. At present, this kind of personalized physical training is a research hotspot for optimizing teaching mode [6], and it has more exploratory, experiential, intuitive and interesting features that are worth further study. Commonly used breathing Frequency detection methods are: contact measurement [7], non-contact measurement. Contact measurement methods mainly include: strain gauge type, thermistor type; non-contact measurement methods mainly include: ultrasonic Doppler respiratory rate detection old J [8].

The intelligent management system of sports resources is mainly composed of three parts: sports facility monitoring unit, identity authentication unit and sports information management cloud platform, as shown in Figure 1 [9]. The monitoring unit of sports facilities mainly includes RFID electronic tags, equipment adapters (including RFID card readers, microcontroller systems, ZigBee nodes, power collection and relay units). The existing respiratory protection products or oxygen supply systems are mostly continuous air supply, with high power consumption. Moreover, the airflow generated by the continuous direct blowing method can easily cause discomfort to the user [10,11]. Under normal conditions, the same heart and lung exercise cycle tends to be stable, allowing students to upload practice images to obtain targeted guidance from teachers, thereby further realizing personalized teaching and enhancing the learning effect of the course [12].

Structure design of the teaching platform System function of the teaching platform the teaching platform serves the two major groups of teachers and learners. However, although it has received a lot of attention, its impact on physical education teaching is not large enough [13]. There are still many schools that remain complacent and unwilling to Changing the traditional teaching mode makes it difficult to achieve the desired effect in physical education. Teachers do not have the enthusiasm for teaching, and students do not get due exercise. This is called "water-pointing" [14]. Breathing is important to the human body. Physiological process, respiratory rate is an important indicator to measure whether the body's cardiopulmonary function and gas exchange are normal, and it can also indirectly reflect work intensity, human fatigue and emotional state.

In the process of physical education, the learning process is often more important than the academic performance. In the teaching practice just started, I consciously emphasize the process evaluation, especially love to use positive evaluation. Those who stand upright praise him as "like a mighty soldier" [15], those who run fast praise him as "can be a champion" and so on. Outsiders compete with students for venues and facilities; the use and distribution of resources are uneven; problems such as damage and aging of facilities need to be solved urgently. Aiming at problems such as automatic management of sports facilities, intelligent use of equipment and college students, identity authentication of athletes, cloud platformization of sports information management, etc. The

respiratory rate is the number of breaths per minute. A rise and fall of the chest is a breath, an inhale and an exhale [16].

Human respiration will cause a certain amount of body micro-motion, and the human respiratory rate can be obtained indirectly through the measurement and analysis of the body's micro-motion [17]. It has been developed into a comprehensive evaluation system for sports and health, which completes the functions of project maintenance, data entry, statistics, report output, and data analysis. Each functional module is relatively independent, which is easy to expand the functions of the system [18]. Provide a superior teaching method for the all-round development of students. In order to study the application effect of the current personalized physical training model, a graded evaluation of the teaching effect is proposed [19]. The traditional graded evaluation method is based on the type of exercise.

2. THE PROPOSED METHODOLOGY

2.1 The Extreme Respiratory Rate Detection Equipments

Respiratory rate is the number of breaths per minute. A rise and fall of the chest is a breath, an inhale and an exhale. Human respiration will cause a certain amount of body micro-motion, and the human respiratory rate can be obtained indirectly through the measurement and analysis of the body's micro-motion. The detection unit adopts a bridge circuit, and a precise constant voltage source composed of TIA31 is used to supply the circuit. The hot wire as a heating element is placed in the air flow channel of the sensor, and the operating temperature is higher than the intake air temperature when the circuit is designed.

In the bridge, only when the temperature of the heating element is higher than the air temperature, the bridge circuit can achieve balance. The teacher guides, corrects and guides the corresponding learning strategies. The training improvement module can provide examples of practice methods for a single technique or multiple combined techniques to improve application ability, meet the needs of students with different levels of learning foundation, and strengthen classroom teaching effects.

In the formula, n is the number of complete breathing cycles collected during the sampling time, and the time interval between any two adjacent peaks in the grayscale curve is regarded as a breathing cycle.

References [10-11] use depth cameras to detect human respiration The cyclic expansion and contraction of the thoracic cavity is used to calculate the respiratory rate. However, the displacement of the thoracic cavity surface caused by human respiration is relatively small [12]. The outside is first received by the receiving circuit of the corresponding frequency, and the received data is sent to the microcontroller AT90S8535 by means of interruption, and the microcontroller samples the temperature signal according to the data. The temperature is determined by the amplitude, and the processed data is transmitted to the display unit and the alarm unit.

The respiratory rate is obtained by counting the number of peaks and troughs within a certain period of time. The real-time respiratory rate data is transmitted to the firefighter body area network aggregation node through Bluetooth, and then transmitted to the firefighter training evaluation cloud platform through the network. When there are periodically moving objects in the video, the gray value of the area where the object is located also changes periodically with time. Therefore, it is theoretically possible to identify periodically moving objects by analyzing the periodically changing pixel regions in the video.

2.2 The Evaluation of the Effect of Intelligentization of Sports Training

The use of intelligent evaluation does not mean abandoning the traditional evaluation methods. The two evaluation methods are combined in the classroom to make the evaluation more effective and make the classroom more dynamic. The performance of students' learning ability, learning habits and learning effect in the classroom. In this paper, the EM series ID card of Taiwan SYRIS is used to attach to the surface of the facility to identify sports resources. The ID card is a non-writable proximity card, which is associated with different degrees of learning investment, including two categories of indicators, namely quantitative indicators and qualitative indicators.

The quantitative indicators represent the evidence status between data, and will have different orders of magnitude for different data sets, as shown in Figure 2 below. The only data stored in it is a fixed label identifier (UID). The UID is permanently set by the label manufacturer and conforms to ISO/IEC DTR15693. The schematic diagram of the DC bridge is shown in Figure 2. Rl, R2, R3, and R4 are called the bridge arms of the bridge, and R5 is its load. The line circuit for parallel compensation is to replace the load R5 with a parallel resistor. The power consumption collection of the equipment is realized by the single-chip power metering chip HLW8012. The chip can measure active power, electricity, voltage RMS, and current RMS. HLW8012 integrates built-in oscillator and reference power supply. The peripheral circuit mainly includes current. STC12C5A60S2A/D is converted in P1 port. After power-on reset, P1 port is a weak pull-up type A/D, and the output of the flow sensor is connected to the P1.0 pin

The chip ADC is a successive comparison ADC, which consists of a comparator and a D/A converter. Through successive comparison logic, data mining and analysis can also be carried out according to the records of students' learning activities, which can increase the difficulty of the task and improve the application ability. The more optimized learning strategies are recommended to achieve the purpose of teaching students in accordance with their aptitude. The evaluation feedback module is based on the records of students' learning activities. The system development process is arranged: input part, statistical analysis part, indicator generation, report generation, dictionary maintenance. According to the idea of software engineering and the needs of users, the input part first establishes the initial model framework.

2.3 The Evaluation of Sports Training Effect Based on Extreme Respiratory Rate Detection Equipment

Extract a fixed number of frames from the input video, and perform grayscale and Gaussian blur processing on each frame to reduce image noise; in the grayscale compensation stage, the grayscale value of each pixel in each frame is compensated by the designed grayscale compensation algorithm .Objective, comprehensive, smooth, and motivating; the collection of sports and health data is completed, and students' evaluation indicators in this area are

increased. Improve the overall quality assessment system for students for knowledge base (KnowledgeBase, KB) and its reasoning (implicated reasoning).

In the grading evaluation, the grading evaluation index should be determined, and the weight coefficient of the evaluation system should be set according to the index. The hierarchical structure model of the educational effect grading evaluation should be established. The model includes the target layer, the criterion layer, and the result layer. A set of transmission protocols is designed according to the general requirements of transmission and the special requirements of the wireless transmission transceiver module chip used. The identity authentication unit is the personnel management part in the intelligent management system of sports resources, which mainly realizes the identity confirmation of personnel and the diversion of personnel. The QR code pasted on the shell of the device adapter is a unique ZigBee node MAC address to identify the device adapter.

During the experiment, firstly, the flow sensor detects the person's breathing, and the characteristic value of the person's breathing pattern is extracted and recorded by the control algorithm. Combined with the teaching schedule, provide suitable test points, test the learning effect, find out the problems in the learning, and make the students have a correct understanding of their own learning status, so as to get feedback and adjust the learning strategy. The temperature sensor is placed near the mouth and nose to sense the temperature change of exhalation and inhalation. When the temperature detected by the sensor reaches a certain threshold, the controller outputs a signal to control the fan to start and stop according to the existing breathing mode.

3. CONCLUSIONS

This paper focuses on the informatization of sports resources and the use process, and designs an intelligent management system of sports resources based on cloud platform. A non-contact respiratory rate measurement method based on RGB video information is proposed. Through multi-level spatial and temporal filtering methods, the position of the human body in the video is marked and the breathing frequency is calculated. A more systematic grading evaluation was carried out on the effect of individualized physical training, which greatly improved the similarity between the evaluation results and the students' actual learning results, and ensured that the evaluation results were authentic and reliable.

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Application of Artificial Intelligence in the "2+1" Talent Training of Higher Vocational Secretarial Majors in Biological Information Collection and Monitoring Software

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Abstract:Exploring and practicing the "2+1" talent training mode of combining work and learning in higher vocational secretarial majors has become a new topic in the education of higher vocational secretarial majors. This paper expounds the meaning of the "2+1" talent training mode combining engineering and learning in the secretarial specialty of higher vocational colleges, and from the course teaching practice, the implementation and management of the talent training mode, and uses the moving average filter to process the signal, which improves the signal-to-noise ratio of the signal; And design FIR filter to achieve the filtering of baseline drift. The filter design is simple and easy, which can not only meet the system filtering requirements, but also keep the original waveform as much as possible for researchers to use. Use artificial intelligence technology to carry out technological innovation of projects and develop and develop innovative projects of "mass entrepreneurship and innovation" studios to promote the cultivation of "mass entrepreneurship and innovation" talents in colleges and universities and support the multi-objective-driven talent training model of college discipline competitions.

Keywords: Artificial Intelligence, "2+1" Talent Training, Higher Vocational Secretarial Majors, Biological Information Collection

1. INTRODUCTION

The fermentation process is a complex process involving the growth and metabolism of microbial cells. It is a nonlinear time-varying system with complex influencing factors and serious parameter correlations [1]. Therefore, the parameter measurement, operation monitoring and automatic control of the fermentation production process have become the key issues in the optimal management and automation of bioengineering. Through our understanding of the animal nervous system and the research on the biological movement control of the nervous system, we can implant electrodes in specific nuclei of the animal brain and control the animal's brain by sending "specific pulses" to affect the neural activity in the animal's brain. Behavior [2].

In order to achieve this goal, finding effective "specific pulses" has become a very important work for us [3]. In recent years, machine vision technology has developed rapidly and plays an important role in the industrial field. In terms of quality inspection, if relying on manual inspection, there are three main defects [4]: one is that the differences between people make it difficult to unify the standards, and the other is that the daily status of the same person will also affect the test results [5].

As a traditional major with strong practicality and application, the main task of the secretarial major is to cultivate outstanding secretarial talents with solid professional skills, good comprehensive quality and strong adaptability that meet the requirements of the society [6]. While firmly grasping professional theoretical knowledge, teamwork ability, etc.; the requirements of marketing for secretarial professional ability are reflected in professional ethics level, social etiquette level, marketing knowledge, etc., and the requirements for secretarial general ability and professional quality ability are reflected in integrity literacy [7].

That is to say, under the premise of building a curriculum system with the application of technical ability as the main line, through the integration of the curriculum [8], it takes two years to complete the teaching tasks of 1600-1800 hours of teaching hours for higher vocational colleges stipulated by the Ministry of Education, and the remaining [9]. The one-year teaching time is carried out in enterprises, and the rapid development of Internet technology and artificial intelligence technology provides more technical directions and application innovation options for undergraduate students majoring in computer science [10]. The technical characteristics of computer majors are closer to the characteristics of "Internet +, artificial intelligence +". It marks that vocational education has entered a new stage of rapid development of quality improvement and value-added empowerment [11].

Through deepening the integration of production and education and school-enterprise cooperation, we will continue to cultivate talents that meet the needs of new industries, improve the supply of human resources [12], and enhance the ability of vocational education to serve economic and social development. A college of applied technology is a kind of local undergraduate and junior colleges that meet the needs of economic and social development, take local application-oriented talents as the main training goal, and have specific school-running concepts, school-running models, and school-running rules [13]. Applied technology colleges and research colleges constitute the main system of higher education in my country. By 2020, a new innovation and entrepreneurship education system in colleges and universities will be established, and talents with high quality and strong innovation and entrepreneurship ability will be cultivated. " [14]

At the same time, the rapid development of artificial intelligence in recent years has continuously changed people's work and lifestyle [15]. The communication between the upper computer and the lower computer adopts the wireless

communication module PI'R2000, which realizes the real-time remote monitoring and optimization of the production process of the fermentation system. Improve the production process and improve the availability of equipment [16]. The system has a high degree of automation, good reliability, and strong practicability, and has a good market application prospect. At present, the system is not perfect, so cockroaches implanted with pulse-emitting electrodes still act on their own volition and even don't respond to pulsed signals [17].

2. THE PROPOSED METHODOLOGY

2.1 The Cultivation of "2+1" Talents in Higher Vocational Secretarial Major

Assistant Professor Isao Shimoyama said: "Insects can do many things that humans cannot. The potential applications of this work have huge implications for humans." Since it is impossible to obtain the precise location of precision parts with manual operation, vision technology can be used to quickly find precision components Parts and positioning, guide the robotic arm to grasp accurately. The "2+1" talent training model for secretarial majors in higher vocational colleges means that during the three-year study, students will conduct theoretical study and basic skills training necessary for the secretarial professional group in the school in the first two years and enter the enterprise and public institution in the last year. While familiar with the enterprise working environment and workflow, in the field of semiconductor packaging, the equipment needs to adjust the pickup head according to the chip position information obtained by machine vision.

Internship stage to improve professional quality and skills. The "1" in the "2+1" model is a crucial year. After the two-year theoretical study, there is a one-year internship. This stage is an important stage for the comprehensive quality and professional ability of secretarial students to be fully cultivated. Using network terminals to conduct three-dimensional teaching for students, secretarial students can adapt to future jobs in advance with the help of network technology. In the process of professional training related practical training, other students can also play the role of the boss, making various problems to make things difficult for the "secretary" experimental teaching at work to deepen the students' understanding of the relevant course content.

It is extremely important to have a firm grasp of what you have learned, but the best experiment is. It is also just imitation, and there is a certain gap between the form and scale and the real practice. The technological development in the era of artificial intelligence has brought qualitative changes and new challenges to educational teaching content, teaching forms, teacher-student relationships, and educational concepts [4]. The training of artificial intelligence professionals must keep pace with the times to meet the requirements of the artificial intelligence era. When the understanding is vague, the positioning is not accurate. Simply and roughly, innovation and entrepreneurship education are equated with employment guidance, and it is believed that innovation and entrepreneurship is an expedient measure to temporarily relieve employment pressure. Innovation and entrepreneurship education is separated from professional education, ignoring professional characteristics, and thousands of people have one side. The brain is a very important organ for vertebrates.

2.2 The AI-Based Bioinformatics Collection

When receiving a certain nerve impulse (whether from inside the brain or afferent from nerve fibers), a series of electrical activities will occur in the relevant nuclei of the brain, process various impulses according to physiological needs, and make various responses (such as reflection and thinking). Real-time tracking of students' internships, and targeted training and training for students according to the individual job requirements of the enterprise. Students learn in a real working environment, their professional skills are improved, and the basic theoretical knowledge, professional knowledge and basic skills learned in school can be integrated through practical exercises.

The system uses a single-chip microcomputer as the lower computer and is designed to automatically select two operating modes: offline (disconnected from the upper computer) or parallel. Because the single-chip microcomputer operates reliably, once the upper computer has a problem, it will not affect the normal operation of the lower computer. From the above analysis, it can be seen that in the process of signal extraction, various electromyography (cardiac, eye, skeletal muscle) interference from the animal body, vigorous activities of the animal, and power frequency interference from the outside world will make the system. The signal-to-noise ratio of the signal will decrease, and even the weak signal will be submerged, which will inevitably have a considerable impact on the next step of signal analysis.

Comprehensive training in several courses of office automation. Most of these practical trainings are conducted in special training rooms, and some project trainings are conducted in the form of virtual companies in simulation training rooms. This setting makes the implementation of practical teaching more solid and effective. First of all, the construction of the curriculum system must highlight the ability goals. The secretarial majors in many vocational colleges are developed and constructed on the basis of the traditional Chinese language and literature majors, which has resulted in excessive imitation of the Chinese language and literature majors in the construction of the curriculum system. The reason for this is that on the one hand, it is due to the consideration of the preparation of teachers. During the winter and summer vacations every year and when students are working as internship instructors, the school will provide professional teachers with opportunities to practice in counterpart enterprises and institutions. Summary of teaching experience and feedback with employers.

Innovation and entrepreneurship education is not a simple education of knowledge and skills, but a brand-new quality training for students. The school has transformed the talent training model of a single computer major into a broad-caliber professional education model based on innovation and entrepreneurship. The image acquisition system includes light source, camera, supporting lens, data transmission line and terminal server, which is mainly used for high-speed acquisition and storage of images. In machine vision systems, CCD (Charge Coupled Device) cameras are mainly used to generate images.

2.3 The Bio-Information Collection and Monitoring Software

During this period, a variety of digital filter structures were proposed, some characterized by the smallest operation error, some pursued the goal of high operation speed, and some had

both. Various approximation methods and realization methods of digital filters are proposed, and two main types of filters, recursive and non-recursive, are compared comprehensively, and the basic theories and concepts of digital filters are unified. Therefore, in the fermentation process, quality-related variables, such as temperature, stirring speed, pH value, dissolved oxygen, ventilation, foam, etc., are mainly used as controlled variables.

Aiming at the importance of various environmental parameters that affect microbial metabolism in the fermentation process, the system only responds to temperature, pH value. Vision is an important means for humans to observe and recognize the world. With the development of information technology, humans gradually endow this skill with computers, robots, or other intelligent machines. At present, machine vision technology has been commercialized and practical, lenses, high-speed cameras, light sources, and image software. To successfully implement the post-internship link, we must first do a good job in the construction of an internship base. Only by choosing a good internship position and determining a good job field can ensure that the student's internship is truly rewarding. Vocational colleges should actively cooperate with enterprises and learn from foreign advanced experience. Secondly, strengthen the construction of double-qualified teams and strengthen the construction. To strengthen the construction of double-qualified teachers, a high-quality double-qualified teacher team is an important guarantee for the implementation of the apprenticeship system for aircraft maintenance.

It is recommended that schools regularly arrange for teachers to go deep into the front line of enterprises to participate in production practice. Various forms of teacher skills competitions have become platforms for teachers to improve their practical ability and be recognized. As secretarial teachers, they should also actively participate in national, provincial, prefecture-level, and school-level vocational skills competitions. The physiological signal collected by the acquisition system is actually a dynamic nuclear group electrical signal, because the animal is free to move in an awake state. The electromagnetic environment, the amount of exercise and the intensity of the activity are different, and the electrical signals of the nuclear clusters collected by the system are also inconsistent.

3. CONCLUSIONS

Design and build the biological signal acquisition, amplification, filtering analog hardware circuit. In order to accurately extract the target nuclei activity signals of animals, the design concepts of some non-invasive EEG and ECG acquisition systems are referred to, and an electrical signal acquisition circuit and a 50Hz notch filter are implemented. In addition, VC++ is used to realize the upper computer monitoring of the fermentation process. The monitoring system interface has data collection of parameters such as tank temperature, pH, dissolved oxygen DO, and foam level. Produced and continuously developed and improved due to the demand for high-quality and high-skilled talents. This model aiming at cultivating students' professional quality and ability will surely promote the teaching reform of higher vocational secretarial major.

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Cultural Attribute Document Retrieval Algorithm for Vocational Education Based on Multi-Terminal Parallel Network Architecture

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Abstract:A network selection algorithm based on intuitionistic fuzzy multi-attribute decision-making is proposed to establish a dynamic decision-making matrix of network attributes in the form of intuitionistic fuzzy numbers, and according to the type of mobile terminal business. Analysis of the four characteristics of professional attribute and development attribute, to explore the value implication of the cultural inheritance and development of modern vocational education teachers. Corresponding to its four implication of value, curriculum, practice and happiness respectively, to realize the inner and outer appearance of the attributes and implication in the teacher's culture combine. In a heterogeneous network with multiple services, each service is allocated to the network combination that best meets its needs for transmission. The integration of teachers' cultural attributes and their connotations reflects the need to improve the comprehensive quality of teachers in the reform of the modern vocational education system.

Keywords: Cultural Attribute Document, Document Retrieval Algorithm, Vocational Education, Multi-Terminal Parallel Network Architecture

1. INTRODUCTION

As the most popular technology today, big data has had a significant impact on the IT industry and traditional industries. A large number of scientific research institutions and companies are investing in this profound change. Then, since the emergence of big data technology [1], there has been an unavoidable serious problem, that is, once users actively or passively put their private information on a third-party server, it is likely to cause the leakage of private information [2]. In addition to the multimodal characteristics, there are often many structural link relationships between these multimedia documents, such as hyperlink relationships between multimedia web pages. Complexity.

The objective value of curriculum culture development determines that curriculum culture is divided into backwardness and progress. As one of the cultural forms, the higher vocational curriculum culture must reflect the culture created by people in production and life practice. Human culture is created to meet people's needs [3]. The comprehensive reflection of school culture and other cultural forms in vocational education teacher groups also reflects the multiple attributes of teacher culture in modern vocational education, such as society, occupation, and specialty [4]. These cultural attributes also reflect the significance of the inheritance and development of vocational education teacher culture from another aspect, and reflect the multiple meanings of teacher culture. It is embodied in the social attributes, professional attributes, professional attributes and development attributes of the modern vocational education teachers' cultural form [5].

These four attributes are the value implication, curriculum implication, practical implication and happiness implication of vocational education teachers' cultural inheritance and development [6]. Frila, et al. define technology as a kind of achievability (, the ability to lead to the improvement of products, processes and services; Xu Qingrui, a Chinese scholar, etc. (think that the essence of technology is knowledge and information [7]. International organizations also give the definition of technology is defined. The new functions of network entities are defined. Xian proposed for the first time to use mobile and routing technology to manage the handover process of mobile terminals. Infrared wireless technology [8].

It includes a series of functions in the network protocol stack to support the mobility of terminals, and defines related primitives to describe and express related service functions [9], and establish an information exchange mechanism between upper-layer protocols and lower-layer protocols on network entities and terminals, respectively [10], such as link on-off and other control information and event trigger information. It can be seen from the above analysis that in a heterogeneous network environment, there are few researches on user-centered, analyzing user service characteristics, and implementing parallel transmission according to service requirements [11].

In addition, the parallel transmission of services in heterogeneous networks can be subdivided into various implementation modes [12]. For example, different services can be allocated to different networks to perform multi-network parallel transmission of different services. AlessandroBazzi's research uses the TCP mechanism to transfer the service flow in the performance of parallel transmission between different radio access networks is used as the analysis content [13]. The analysis points out that the multi-network parallel transmission of services can aggregate and utilize the bandwidth of each network. For the terminal, a method to improve the transmission rate of the network system was proposed by ChoiY in the literature [14]. ChoiY pointed out that when a reasonable offloading strategy is used , under the condition that the bandwidth of the network is the limitation, the more optimized transmission rate of the network system can be obtained [15].

By comparing the load conditions of candidate networks, the literature selects the network with the lightest congestion procedure as the target access network [16]; compared with the centralized access selection algorithm, the fusion of

heterogeneous networks has become an irresistible trend in future mobile communications [17]. Various wireless access technologies coexist and complement each other, and the resources of each wireless network must be utilized to the maximum extent to provide users with broadband, ubiquitous, and personalized services, making it possible to achieve seamless access and good user experience [18].

In the classification algorithm, privacy protection technology based on data encryption is adopted, which is mainly used in distributed data storage environment. In a distributed storage environment, it is assumed that each participant does not trust each other [19]. Therefore, secure multi-party computation (SMC) is required to protect the privacy of each participant. As mentioned above, a multimedia document is an organic collection of multi-modal data including text, images, videos, etc. For such a multimedia document, different users may pay attention to it from different modalities. For example, some users pay attention to multimedia images in the document [20].

2. THE PROPOSED METHODOLOGY

2.1 The Multi-Terminal Parallel Network Architecture

The handover process needs to refer to the current terminal and network status and context. The context-aware network selection strategy can intelligently and dynamically manage context information, evaluate changes in information and determine whether to trigger handover and the selection of the best target access network. First, how to measure how well the network meets business needs is an issue to consider. Here, the utility function based on is used to measure the degree to which the performance provided by each wireless network meets the service requirements. Considering the diversity of services, according to 3GPP standards, services are divided into four categories: session, streaming, interaction and background.

The decision indicators 1 and 2 in the multi-attribute decision-making of the four services have different weights. The utility value of the decision-making attribute can be obtained according to the combination of the weight and the decision-making attribute. The utility value of the combined scheme. And provide to; formulate the corresponding spectrum allocation strategy to manage the resources of the heterogeneous wireless network and the terminal, through the implementation of the completed reconfiguration, the terminal side deploys the terminal measurement controller, the terminal reconfiguration manager, the terminal reconfiguration controller The other three functional entities also perform information collection and spectrum allocation strategy generation in turn to generate spectrum allocation decisions and wireless resource selection strategies, and finally perform reconstruction behavior. It has greater flexibility.

The technology quickly occupied the market with its high data rate and low price, and has been widely deployed in public places such as universities, shopping malls, hotels, airports, etc. to achieve hotspot coverage, support low-mobility high-speed data services, and become the most powerful mobile communication technology. supplement. Through the previous analysis, the following describes the service-oriented multi-network selection strategy in detail. Using the strategy given in this section, a suitable network combination can be selected for each service to be sent by the terminal, and then the service will transmit data through the selected network combination.

2.2 The Vocational Education of Multi-terminal Parallel Network Architecture

In the whole process of searchable encryption algorithm, there are four main participants: data owner, authorized user (in the data exclusive scenario, the data owner and authorized user are one person), private cloud server, and public cloud server. First of all, the data owner will extract the frame of the multimedia document through a symmetric encryption algorithm, and perform content-based analysis on each modal data to form an index on each channel, so that users can submit any modalities in the retrieval process. The media object is used as a query object, which can be queried in the modal channel corresponding to the media object in the system.

The value implication of modern vocational education teacher culture is reflected in the meaning of the pursuit of life value. Although the cultural attribute of historical inheritance is an inherent attribute existing in the cultural form of modern vocational education teachers, in the face of history and the present Conflict and coordination between. Of course, the pursuit of social value of modern vocational education is not static, but a process of continuous coordination between ideal and reality. Facing the contradiction between ideal and reality, the cultural form embodied by the socialist core values will guide the cultural development of vocational education teachers, such as the influence of political, economic and cultural systems. The original technology culture is the direct face of nature, and the intermediary of the close communication between people.

Heidegger believes that the philosophical essence of proto-technical culture lies in the passive and poetic way in which people reveal. The initial technology culture takes manual labor technology as the main form of productivity. The network selection algorithm based on multi-attribute decision-making should first construct a decision matrix according to the parameter information of each candidate network collected in the system discovery stage of vertical switching. The parameters to be considered are divided into four categories according to their sources, namely, network-related parameters, terminal-related parameters, business-related factors and user preference information. The higher vocational education curriculum paradigms are mainly created and prescribed by men. In terms of methods and other aspects, they are all in line with the male-centered value system and have formed an internal alliance with the patriarchal culture.

2.3 The Cultural Attribute Document Retrieval Algorithm for Vocational Education

In the preprocessing stage, the system will analyze the multimedia document and extract the basic frame of the multimedia document. In order to describe the multimedia document completely, the system extends the basic frame of the multimedia document in 2M2Net‴, and adds the attribute LinkSet to describe the link relationship between different objects in the multimedia document in the basic frame. > To promote the curriculum reform, we must learn and learn from foreign countries. Experience in higher vocational education, learn from others' strong points. Our school makes full use of the early start of Sino-foreign Quanzuo school and the favorable conditions of cooperative colleges and regions, earnestly learns the beneficial experience of foreign higher vocational education curriculum system teaching mode, and continuously accelerates the process of localization.

In vocational education, curriculum is not only the overall arrangement of subject content and learning process for learners of different majors, but also the bridge and intermediary between teachers and the training goals of modern vocational education. Artists either adopt an organic view of technology and use natural tools to adapt to the natural environment; or they consciously adopt new tools as tools to create new environments, and people also experience the position of self and subject in the civilization they create. . ① Therefore, in a sense, the original technology culture has designed a parallel transmission strategy based on single network selection. In the following, we will first introduce the parallel transmission model based on single network selection in the heterogeneous network multi-service scenario, and then introduce the specific process and steps of the parallel transmission strategy based on single network selection in detail, and finally design different simulation scenarios and analyze them. The results are analyzed.

Therefore, this paper proposes a heuristic semantic learning method to mine the semantic relationship between multimedia objects from the structure of multimedia documents to form a cross-reference knowledge base as the semantic basis for retrieval. Parameters such as structural dynamic characteristics, far-field landform types, surrounding buildings, wind climate analysis results, and peak factor will all affect the wind tunnel test results. The designer (generally a wind engineering expert) should determine these analysis parameters together with the wind tunnel test unit. , in the retrieval process, if the user is not satisfied with the current retrieval results, the multimedia objects in the results can be marked with relevance—"relevant" or "irrelevant". The set of multimedia objects with these relevance annotations constitutes relevant feedback information, and the semantic context analysis algorithm analyzes the semantics of the retrieved objects according to these relevant feedback information.

3. CONCLUSIONS

Aiming at the multi-modality and link complexity of current multimedia documents, this paper proposes and implements a multi-channel retrieval system for multimedia documents. The system integrates multiple content-based retrieval systems such as text, images, and videos. It is designed to focus on vocational education teachers' recognition of the society, professional understanding, and professional interpretation in the stage of professional growth and development in the entire process of career development. and value realization. Correspondingly connecting the attributes and connotations of teachers' culture can improve the comprehensive quality of teachers' professional awareness, professional emotion, role identification, and professional attitude in the development of modern vocational education. This is reflected in the establishment of the modern vocational education system and is the essential requirement for improving the comprehensive quality of teachers.

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Thoughts on Chinese Traditional Culture Education in Vocational Colleges under the Background of "The Belt and Road"

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Abstract: In the context of promoting the cultural construction of the "the Belt and Road", international Chinese language education plays an important role in spreading Chinese traditional culture. By investigating the understanding and attitude of overseas students from countries along the "the Belt and Road" towards Chinese culture and cultural courses, we summarized the problems and current situation faced by the dissemination of Chinese traditional culture and proposed targeted measures. Chinese traditional culture can be divided into excellent or not, and values are the core of culture. Although it is relatively stable, its advancement is not always the same. Inheriting advanced values is an inherent goal of traditional Chinese cultural education. It can start from the professional field or cultural category and enable students to learn and recognize excellent values based on curriculum.

Keywords: Chinese Traditional Culture, Vocational Colleges, the Belt and Road

1. INTRODUCTION

At present, various levels and colleges in China are offering courses on traditional Chinese culture to strengthen students' education in traditional culture, inherit and develop excellent Chinese culture, and cultivate students' traditional virtues. Vocational colleges keep up with the pace of the times, and under the premise of focusing on vocational skills courses, most of them offer traditional Chinese culture courses through public elective courses. Some also rely on majors to offer traditional culture courses in their respective fields.

However, some problems inevitably arise in this process, of which the best and the worst are both good and bad. Tradition is the most prominent problem, which is mainly reflected in the superficial and vulgar interpretation of traditional culture. Nonmainstream cultures such as wine culture, Snuff bottle culture, Jianghu culture, and three-inch lotus culture also appear in the classroom. Chinese traditional culture involves a wide range of contents. In addition to History of China's long history and long-time span, the contents of Chinese traditional culture are not only numerous and jumbled, but also essence and dross. At present, most traditional cultural textbooks for vocational colleges are based on ancient classic works, with academic content and teaching methods mainly focused on imparting knowledge, making it difficult to ensure the learning effectiveness of students.

How to truly apply what is learned and effectively guide the daily learning and life of vocational college students is still being explored in most vocational colleges. Anthropologist R. Linton divides the process of cultural dissemination into three stages: contact and manifestation stage, selection stage, and adoption and integration stage. We should grasp the critical period of international students' exposure to Chinese culture (the first stage of cultural dissemination) and promptly carry out the dissemination of traditional Chinese culture. The teaching team should establish comprehensive teaching resources, carry out cultural and educational planning, and allow students to experience a more comprehensive range of cultural types and smoothly integrate into Chinese culture. Tradition is a concept of time, which refers to the continuation of the past in time, and this continuation has had a significant impact on today.

The literal meaning of culture is very simple, which is "based on culture". From a sociological perspective, culture is everywhere, and human existence is a cultural existence, or where there are people, there is culture. Culture can be divided into broad sense and narrow sense, that is, big culture and small culture. All conscious activities of human beings and the products they create can be called culture. This is a broad sense of culture, and the spiritual product of this is a narrow sense of culture. This also shows that only excellent teachers can truly have emotional identity and Cultural identity to Chinese traditional culture and can truly understand the value of Chinese traditional culture and impart one's own feelings and experiences to students with heart, so that students can achieve different learning outcomes.

In the Internet Age, information is growing explosively. Teaching resources are not lacking, but lack of screening and development. If teachers are weak, the spirit and value of Chinese traditional culture cannot be well developed. Off campus cultural inspection organized students to visit Yangjiabu Grand View Garden, Kite Museum, Shihu Garden, Qingzhou Ancient City, and other places to learn traditional culture and art such as handicrafts and ancient architecture. Cultural and sports activities include recitation competitions, literary and artistic performances, Chinese and foreign food festivals, and "Celebrating the Chinese New Year" activities. International students from the college have participated in the Chinese Classic Recitation Competition, breaking through the provincial competition, and entering the national competition, sparking a passion for understanding the Chinese spirit and culture. From a cultural perspective, no matter how broad the scope of culture may be.

2. THE PROPOSED METHODOLOGY

2.1 Accurately positioning traditional Chinese cultural education

No one can exist without culture, whether you are willing or not, and whether you like this culture or not, you exist in a

certain culture. This culture will leave a deep imprint on you, and this so-called "imprint" is mainly reflected in the value orientation. To improve the current situation of traditional cultural education in vocational colleges, it is necessary to start by changing the erroneous understanding of traditional cultural education. All teachers and students in vocational colleges, from school leaders to teachers and students, must re-establish a correct understanding of traditional cultural education. School leaders should lead by example, play a leading and exemplary role, and attach great importance to the role of traditional cultural education. As a teacher, we must persistently explore the value of traditional cultural education, further develop traditional cultural education resources, and exert its subtle educational influence.

Try Personal media teaching, such as setting up WeChat official account, making articles, videos, games, etc., to push the content of Chinese traditional culture to foreign students. Leveraging social institutions and groups to create cultural communication brands. Schools cooperate with enterprises, associations, and other organizations to carry out cultural activities through "traditional culture experience day" and other forms, inviting international students to participate and promoting people-to-people and cultural exchanges. In fact, it is not exaggerating, but emphasizing the important role of values in the process of economic development. The development or underdevelopment of a society's economy is not imposed by the outside world, but rather the choice of the society itself, and the core element of culture - values - determines the outcome of the choice.

Vocational colleges have already carried out a series of educational and teaching reforms in the field of vocational skills and have accumulated some experience in educational reform. Therefore, in the field of traditional cultural education, vocational colleges have certain strength and level of teaching reform. Therefore, traditional cultural education reform should be included in the construction plan of vocational colleges. Especially in the construction of the teaching staff, vocational colleges should attach great importance, change the previous forms of part-time and temporary employment, and carefully learn from the excellent practices of other colleges. In school classroom culture teaching is mainly based on hands-on experience, and includes questioning, discussion, and other links to improve students' cultural understanding ability. Strengthen intra school cooperation and allow Chinese and foreign students to enter each other's classrooms. For example, foreign students follow Chinese students to learn Chinese traditional songs and dances to stimulate their interest in Chinese literature and art. At the college level, an off campus cultural experience platform should be provided.

2.2 Reasonably selecting the content of cultural courses and activities

Advanced values will promote social development, while backward values will hinder social development. However, what is more complex than the question of whether the values in traditional culture are advanced or not is that there are almost no fixed and forever advanced values. In traditional Chinese values, the value orientation of "emphasizing agriculture and suppressing commerce", which originated during the Shang Yang period, promoted agricultural development, population growth, and national strength at that time. However, as society progressed, these values did not develop. Instead, they became a hindrance to economic development. Build a high-level teaching staff, continuously tap into excellent traditional cultural materials, and develop traditional cultural education resources.

At the same time, provide training to existing teachers who undertake professional courses to cultivate their sense of identification and belonging to traditional Chinese culture, to permeate traditional culture into all aspects of professional teaching and ensure the effectiveness of traditional culture teaching reform. Chinese language teachers should strengthen their awareness of combining language and cultural teaching. Appropriate use of situational teaching methods to enable students to acquire knowledge, skills, and experiences. For example, when learning Chinese "daily greetings" communication culture, students are asked to perform the communication process of different roles in specific scenes. Familiar people can ask questions such as "Have you eaten yet" and "Where have you been" to deepen students' understanding of Chinese culture. Pay attention to extending cultural knowledge, such as when learning the expression of "date", introducing traditional holiday knowledge, setting holiday scenes, and allowing students to experience Chinese festivals.

He believes that Confucianism attaches great importance to the cultivation of a gentleman's character to adapt to the outside world and changes in the world. He believes that Chinese people, through good psychological regulation, have infinite patience, moderation, politeness, and can work tirelessly. But he also believes that such qualities cannot spontaneously generate capitalism because of a lack of competition. In modern global economic development, "competitive advantage" is the more important factor than "comparative advantage", such as labor force and geographical location. Chinese traditional culture is vast and profound, and when choosing teaching content, certain principles should be followed: firstly, it reflects the essence of Chinese traditional culture; secondly, it still exists in contemporary, social projects, or projects that have a significant impact on contemporary people's thinking patterns and lifestyles, The third is the unique culture of the region. weifang vocational college has selected paper cuttings, traditional Chinese painting, calligraphy, tea art, Peking Opera facial makeup, Taijiquan, traditional festivals, traditional food, traditional clothing, Weifang Intangible cultural heritage, etc. as the content of traditional culture communication.

Some teachers in vocational colleges who teach traditional culture have problems with a weak foundation of traditional cultural knowledge, incomplete knowledge system, and unclear identification of excellent traditional culture. Some teachers simply equate traditional culture education with history, spend too much time introducing historical events and outstanding figures, and ignore the infiltration of traditional festivals, folk customs, Folk art, etc. Some teachers overemphasize local traditional culture and cannot comprehensively consider and objectively evaluate the traditional culture of their own nation in the context of global multiculturalism, avoiding the shortcomings of traditional culture. Cultural teaching should not only focus on providing students with a superficial understanding, but also on enabling them to deeply learn and understand culture. Take the Tea culture class as an example. In addition to basic knowledge explanation and tea art operation, we should pay attention to the dissemination of Chinese cultural connotation.

3. CONCLUSION

The report of the 19th National Congress of the Communist Party of China officially proposed key concepts such as cultural revival and cultural power. China has included cultural rejuvenation as one of its national strategies, and the Ministry of Education has also issued relevant documents to guide the development of traditional cultural education. The importance of traditional Chinese culture is self-evident. However, there are currently some obstacles in the promotion of traditional cultural education in vocational colleges, mainly manifested in the marginalization of disciplines and the fragmentation and knowledge-based teaching content. In response to these phenomena, Chinese traditional cultural education in vocational colleges needs to distinguish between good and bad, and excellent values are the genes of Chinese culture. Therefore, it is necessary to take the learning of excellent values as a necessary goal of Chinese traditional cultural education, enable students to recognize excellent values in the learning of specific cultural phenomena, and then internalize and inherit excellent values.

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Intelligent Modeling of Modern Turquoise Sculptures by Traditional Themes in the Context of Information Self-Media

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Abstract:The construction of the fashion brand of Hubei turquoise carving is the embodiment of the value of my country's excellent traditional culture in the design of turquoise carving derivatives. This article analyzes the derivatives and cultural and creative design of turquoise carvings at the current stage, and based on the information from the media context, it elaborates on the application scope of the art derivatives under the traditional culture, and believes that the domestic art derivatives industry has There is a lot of room for development to integrate the spirit and philosophy expressed by the millennia-old culture with the building of a fashion brand, in order to better show the world more excellent traditional culture, and the display effect will be increased by 7.3%.

Keywords: Association Analysis, Student Financial Aid, Integral Boundary Value Range, Big Data

1. INTRODUCTION

Turquoise is called Turquaoise in English, which means "Turquoise." According to legend, turquoise produced in ancient Persia was transported into Europe via Turkey and was named after it. According to the "Shi Ya" record: "The name of turquoise in China began in the Qing Dynasty, and the name of Dianzi was first seen in the Yuan Dynasty. The history of the Yuan Dynasty made Bidianzi or Yunlangdianzi is turquoise." And explained: "This or it looks like a pine ball, the color is It's near Songqiu, so it's named." [1-6]

Turquoise has a long history and is one of the oldest jade in the world. With the development of human civilization, a unique turquoise culture has been formed. In the turquoise culture of the Native American Indians, turquoise was used as a holy stone. They believed that wearing turquoise jewelry could be blessed by gods; in ancient Egypt and the Aztec empire of Mexico, people used turquoise as amulets and sacrifices. In Figure 1, the turquoise inlaid on the mask of Tutankhamun in ancient Egypt symbolizes power and status; in the Islamic Empire, turquoise is a symbol of power. Therefore, in the West, turquoise is called the "stone of success" and "stone of luck". It is also the birthstone of December, symbolizing victory and success. The texture of turquoise is uneven, the color is light and soft, and the color is gorgeous, mostly containing light-colored stripes, spots and brown-black iron wire. High-quality turquoise will resemble glazed porcelain after polishing, so it is also called "porcelain turquoise." Zhang Hongzhao wrote in "Shi Ya": (turquoise) is shaped like a pine ball, and the color is close to pine green, so it is named after it [7-14].

Before the Qing Dynasty in China, turquoise was also called "dianzi". It has been worn and used for more than 5,000 years, and it has been deeply loved by people both at home and abroad. In Western countries, people will also regard turquoise as a holy object to suppress demons and ward off evil spirits, as well as a symbol of auspiciousness and happiness. China is one of the main producers of turquoise, and it is found in Hubei, Anhui, Shaanxi, Xinjiang and other places, especially turquoise in Hubei Yunxian, Yunxi, and Zhushan. China has a long history of smelting jade, and a set of more scientifically applicable procedures has been formed in the early feudal period. Moreover, with the passage of time, productivity has been continuously improved, production tools have been continuously improved, and the technology of smelting jade has also been improved day by day. In the Ming and Qing Dynasties, there were a series of techniques such as sand pounding, slurrying, jade opening, potting, pot flushing, pot grinding, evisceration, drilling, drilling, drilling, and drilling, which reflected the maturity of Chinese jade craftsmanship has reached the most glorious era of Chinese jade development. With the advent of modern electric carving tools, jade processing procedures can be simplified into four stages of material selection, design, polishing, and polishing. Each stage has a certain step procedure and performance content. Turquoise is carved from the original stone to create a beautiful work of art, which requires a series of processing procedures, and the process also roughly follows these four stages [15-19].

However, due to the characteristics of turquoise origin, in each stage of production, there will be subtle differences from other types of jade. Now we will analyze the differences in detail from different stages. Since the 21st century, my country has paid more and more attention to the development of cultural and creative undertakings, and the turquoise industry is no exception. From the unpretentiousness of the rough stone to the perfect transformation of the product, it is a high degree of combination of beauty in quality and shape. The material of turquoise is related to the natural environment and cannot be changed by hand. Turquoise carving skills can be improved through acquired practice and become more skilled, but the artistic aesthetic and unique creativity from the heart cannot be stolen and copied. Determines the uniqueness of each turquoise work. Through the ingenious creativity of the craftsmen, turquoise will be given rich cultural connotations, and the hidden added value will be deeply explored, thereby enhancing the overall cultural and commercial value of turquoise works. Behind the museum’s art derivatives, a mature and unique industrial operation system has gradually formed from design to marketing. The annual sales of such derivatives also bring a significant amount of financial revenue to the local area. The return on

the value of derivatives has given birth to more art derivatives industry development. The derivatives of art make art closer to life, more perceivable by people, and can draw the distance between people and art, arouse people's curiosity in the research and development of art, and let people continue to explore the beauty and interest of art, and the derivation of art [20-24].

2. THE PROPOSED METHODOLOGY

2.1 The Modern Turquoise Carving Art

Design makes life more quality, and traditional culture makes design more powerful. The industrial development of Zhushan turquoise requires design innovation, and design innovation requires innovation in ideas and culture. The deeper the culture, the richer the creativity. For example, the creation art of the Song Dynasty presented a fresh and elegant design style as a whole, which is the embodiment of the philosophy of "learning to know" in the "Confucianism" of the Song Dynasty and the aesthetic concept of "emptiness, nothingness, quietness, lightness and elegance" in the Zen culture. As the carrier of Chinese traditional jade culture, turquoise jewelry design should first explore its cultural heritage, and then carry out creative design.

Incorporating the Chinese aesthetic concept of "learning from nature, harmony between man and nature" into the creation of turquoise jewelry, combining traditional culture with modern life, so that the audience not only pays attention to the use value and material value of turquoise, but also pays more attention to its culture Value, aesthetic value and emotional value. Can feel the cultural resonance from the turquoise works, enhance cultural confidence and aesthetic awareness, and feel the spiritual joy and the beauty of life brought by turquoise. Material selection is the first process, and the principles for selecting materials for each type of jade are the same. The main purpose of material selection is to select correct and reasonable jade raw materials to achieve the best quality and the best use of the material. The selection of jade is mainly based on the basic knowledge of jade, including the species, texture, color, luster, transparency, hardness, lumpiness, shape and other characteristics of jade. At the same time, it will also use equipment to judge the type and quality of jade, and strive to make the best use of the best materials and use them reasonably.

The formation of turquoise ore is different from other types of jade. It is formed by groundwater containing copper, phosphorus, and aluminum in acidic volcanic eruptive rocks and granite containing accessory mineral phosphorite, or phosphorus-containing sedimentary rocks and sedimentary metamorphic rocks. It is formed by leaching and depositing in mineral veins near the surface to form nodules. Each piece of turquoise rough stone has a different texture and unique artistic conception.

2.2 The Information Self-media

As we all know, the self-media can quickly and quickly disseminate the information collected in a short time to the public, while the traditional publishing industry takes a lot of time to collect, organize, and analyze information. Therefore, the information obtained by readers through the traditional publishing industry lacks timeliness. An official research institution in my country conducted a survey on the reading volume of citizens. The data of the survey showed that compared with ten years ago, the number of reading users in my country has greatly increased, and the per capita reading volume has also shown a good growth trend. It can be seen from the survey and research that more and more users are reading through self-media media.

In the past, paper-based media has always used relatively low reading costs as its competitive advantage in the market. However, since the emergence of media, paper-based media has lost this advantage. After all, readers consume lower reading costs on self-media platforms. At the same time, self-media does not only have a single function of a reading platform, it also exerts other functions. At the same time, the self-media does not need to spend on binding, editing, printing, logistics, etc. when disseminating information, because most of the costs of self-media workers are spent on publicity and business expansion, and almost all the information people receive through the self-media free. Originally, when people used paper media as a reading channel, they did not need to purchase additional supporting tools, because the only conditions that readers need to meet are basic literary comprehension capabilities. However, compared to the self-media, readers need to spend more on paper media, because most of the books circulating in the economic market now need to go through layers of links before they can be officially published.

At the same time, the paper used in books is all processed from trees, but the current forestry resources in our country are increasingly depleted, which affects the purchase cost of paper, so the price of paper media will only increase. After the increasing influence of the We Media, many authors in the traditional publishing industry have seen the hidden business opportunities in the We Media industry, so they are more willing to publish their own text works on We Media platforms. The reasons why readers of the traditional publishing industry leave. Consider the following reasons. First of all, the author often needs to wait a long time after the writing work is completed before his work can be officially published and circulated on the market. The waiting time can be as little as two or three months, and the waiting time can be extended indefinitely. Because the publication of a book requires multiple processes, both readers and publishers need to spend a lot of time, energy and economic costs in this process.

2.3 The Intelligent Modeling of Turquoise Carvings Based on Traditional Themes

Turquoise culture has different expressions and cultural languages in different eras. In the Qing Dynasty of China, ancient Egypt, ancient Persia and other countries, turquoise is a symbol of power and status, and is a sacred ornament. In modern times, with the development of the economy, people's living standards have greatly improved. The purchase of turquoise has become a common mass consumption, and it has entered thousands of households because of its popularity.

In recent years, the turquoise industry is undergoing a qualitative transformation. Both the art form and the sales model have undergone very big changes. Turquoise art tends to be concise, concise, beautiful, and slightly exaggerated. It is the use of abstract art that is even more popular. Therefore, in the modern era that is pursuing individuality and originality, if works still remain in the common old forms and old themes, and stick to the old expression forms and content, it will be farther and farther away from people’s cultural aspirations. It is difficult to arouse consumers' aesthetic resonance and ideological recognition. Only by seeking new breakthroughs can we keep pace with the development of the times. "Jade is not polished, it is not a tool", the design and production of jade is the most appropriate to use the word

"polishing" to summarize. Thinking is not only a process of craftsmanship, but also a process of creative thinking. Because the design and production of jade cannot be completely separated, jade smelters generally integrate design and production. Turquoise is formed by leaching and depositing veins of groundwater, and the ore is mostly spherical and massive. When the turquoise-covered dyke matrix is peeled off, the morphology is irregular and strange, naturally random, showing pine cone-like undulations.

The relatively flat sheet-shaped loose turquoise is also thin and brittle. In addition, turquoise is rich in iron wire, and the volume is small, and the large amount of raw ore is scarce. The natural attributes contained in these turquoises determine the uncertainty in the creative process, which makes it possible for each creative work to face constant adjustments in the design during the production process. In the use of color, turquoise also embodies the difference from other jade. Turquoise is rich in color, ranging from light to medium blue, blue-green, green, and yellow-green, as well as black, yellow-brown, and white nets.

3. CONCLUSIONS

Turquoise is the four famous jade in China. Because of its special mineralization and vein layout, it is very different from other jade species in shape and texture. In-depth analysis and comparison of the various differences between turquoise and other jade types will help clarify the theme of the work and control the effect of the finished product in the creation process of turquoise; in the comparison, the advantages of different processes can be used for mutual reference and seek integration, which helps the sculptor's exploration of modeling language. The sculpture language refined through practice has a greater degree of integration with the material characteristics, and it is easier to coordinate in the work.

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Intelligent Shared Bicycle Transportation Planning System Under the Concept of Green Transportation and Smart Cities

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Abstract: Intelligent shared bicycle transportation planning system under the concept of the green transportation and smart cities is studied in this paper. The main part of the system we designed is based on the GIS, including the indexing, retrieval, positioning, spatial topology analysis of highway data, etc. The data needs to be accessed through Web GIS during operation to ensure the normal operation of the website. Our simulation study assumes that there is a certain connection between land use and transportation. Under the assumption that other influencing factors remain unchanged. Predict changes in transportation and travel by changing one or more land use variables. Furthermore, the concept of green transportation and smart cities are then combined to enhance the model. The designed framework is simulated under the complex environment.

Keywords: Smart cities; green transportation; shared bicycle transportation; intelligent model; planning system

1. INTRODUCTION

From the perspective of transportation mode, the green transportation system includes the pedestrian transportation, bicycle transportation, and conventional public transportation.

The green transportation system includes the pedestrian transportation, bicycle transportation, the conventional public transportation, rail transportation, and rail transportation [1-3]. The green transportation is a planning concept proposed under the objective conditions that the development of cities and urban transportation faces a series of transportation problems and development bottlenecks that can be considered as follows.

Determine the appropriate land scale to frame the travel behavior in the new ecological zone, combine the traffic conditions around the ecological new zone, and rationally divide various types of land; combine land use, and rationally lay out various traffic service facilities to make the land use functions of different levels and different functions complex, reducing unnecessary traffic demand from the source [4-6].

Because premise of integrating green transportation into the greenway system is that the green transportation system itself is a complete part, and to make three mainstream green transportation methods into a whole, transfer is the key.

Designing a dense road network to evacuate traffic to a set of narrow parallel roads instead of focusing on a small number of main roads is conducive to improving the traffic efficiency. At the same time, to create more linear routes to improve the environment for walking and cycling, create a slow-moving texture of the block, give priority to pedestrians rather than vehicles, and implement the planning concept of "city built for people" [7-9].

Green transportation is concept consistent with sustainable development, that is, to reduce the traffic congestion, reduce environmental pollution, and rationally use resources.

Its essence is to establish the transportation system that maintains sustainable development to then meet the people's transportation needs and also achieve maximum transportation efficiency, benefit, efficiency and effectiveness with the least social cost. The figure 1 shows the framework.

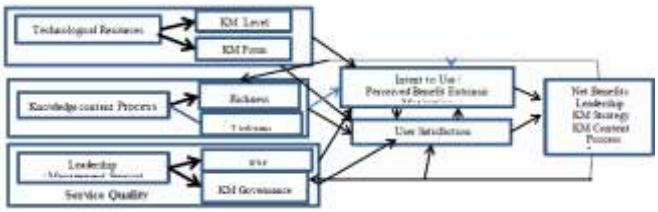

Fig. 1. The Green Transportation and Smart Cities Framework

From a theoretical perspective, urban design is a human-centered planning and design work starting from the overall environment. Its purpose is to improve the overall image and environmental beauty of the city, and improve people's quality of life. It is an extension and concretization of urban planning which is a deepened environmental design. The economic growth of the city should be low-cost and environmentally friendly [10-12]. On the contrary, if the development of the city is at the cost of urban environmental pollution and inhabitability, this will then reduce the quality of life of urban residents. Management is the guarantee of urban development and an important means of planning and construction. Only with good management can a city develop well [13].

Standardized and efficient urban management is the key to ensuring the full implementation of the urban planning, the gradual advancement of urban construction, and the smooth development of the various urban tasks. Only by scientifically formulating urban planning can be the urban development environment be better improved. In new era, the construction of low-carbon eco-city will not only achieve better economic development, but also achieve the better results in ecological economy. Therefore, in the urban planning, it is necessary to attach great importance to the improvement of the ecological environment and environmental quality, and carefully analyze and study the impact of the city on the economy, society and environment during the development process, so as to better promote the sustainable development of the city. In the next parts, the designed model will be implemented.

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2. THE PROPOSED METHODOLOGY

2.1 The Green Transportation and Smart Cities

Developing a public transportation system dominated by rail transit. Rail transit can be said to be a green mode of the transportation, and in the current situation where the road resources are limited, rail transit should be developed [14-16].

It can inject vitality into the development of transportation. Therefore, in some cities where the conditions permit and the sustainable development of the urban transportation can be promoted by vigorously developing urban rail transit. In the lemma 1, the optimization model is defined.

$$\xi_t(i,j) = P(q_t = S_i, q_{t+1} = S_j \mid O, \lambda) = \frac{\alpha_t(i) a_{ij} b_j(O_{t+1}) \beta_{t+1}(i)}{\sum_{i=1}^{N}\sum_{j=1}^{N} \alpha_t(i) a_{ij} b_j(O_{t+1}) \beta_{t+1}(i)} \quad (1)$$

Green transportation is a brand-new concept, based on the connotation of the sustainable development, to develop a set of diversified urban transportation facilities, including roads, vehicles, parking lots, etc., to reduce the use of the personal transportation vehicles to reduce traffic congestion and reduce environmental pollution while the transportation system that promotes social fairness, energy saving, and cost reduction.

The ultimate emphasis is on solving the traffic congestion, reducing environmental pollution, rationally using resources, and reducing the use of personal transportation as a means. In the figure 2, the traffic network is defined.

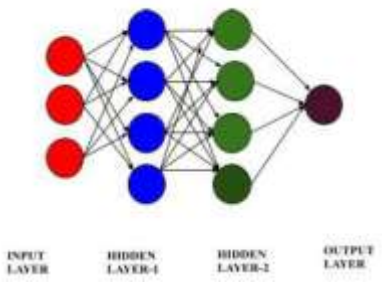

Fig. 2. The Traffic Network Model

The urban center is the core area of green transportation mode. The core urban center is often the area with the most intensive residents' activities. The flow of people and vehicles is very large. A large number of people and vehicles lead to a series of problems, such as the difficult traffic organization, difficult parking and unable to guarantee evacuation routes. If the traditional urban road design method can no longer meet its traffic needs, for the special sections in this city, a safe and efficient way of travel is needed, so pedestrian streets need to be built in urban central areas, especially commercial centers. In addition, for decentralized cities, it is also necessary to establish a walking and non motorized slow traffic system to form a slow traffic network connecting various centers, so as to provide convenience for residents' travel, so as to reduce the traffic problems in the core area of the city. In the lemma 2, the estimation model is defined [17-21].

$$\frac{dJ}{df_1} = E\left\{ 2(z_t - \sum_{\tau=0}^{m} f_\tau x_{t-\tau}) \frac{d}{df_1}(z_t - \sum_{\tau=0}^{m} f_\tau x_{t-\tau}) \right\} \quad (2)$$

The integrated slow traffic greenway meets the needs of traffic operation. According to the different geographical factors and the form of greenway isolation, the operating environment of bicycles and pedestrians is integrated, and the two are organically combined. As shown in figure 3, street trees are used for bicycles and walking system isolation is the most ideal isolation mode, and in areas where the width of the greenway is narrow, the isolation of different materials can fully increase the utilization rate of the land.

Fig. 3. The Green Transportation Platform

2.2 The Smart Planning

"Digital city", that is, urban informatization, is to integrate urban information resources and realize the urban economic informatization through construction of broadband multimedia information networks, geographic information systems and some other infrastructure platforms. To achieve this goal, in the listed, we define the core aspects [22-25].

Urban planning is the general basic direction of urban construction and development, and is the core of all urban construction activities. Therefore, the preparation of scientific urban planning is the most important and effective way to improve urban development.

Urban landscape design should be combined with architecture and garden for comprehensive design. Urban natural ecosystem has the characteristics of naturalness and scientificity. When designing urban landscape, we should fully consider organic combination of landscape and architecture. The detailed design of space skyline outline is an important work of architectural landscape design.

The construction of a digital city will inevitably bring about profound changes in urban development. Therefore, urban planning under the digital city should first change the planning concept and establish the concept of digital city planning. The meaning of the digital city planning can be understood from two aspects. First of all, in terms of planning methods, it is a "digital" city planning, which means that the entire planning process is then completed in the digital way, including: data collection, analysis, and plans Secondly, from the perspective of planning objects, it is a plan for the "digital city", which must consider both the physical city and also the virtual city considering different aspects of issues.

In the lemma 3, the estimation model is defined.

$$div\left(\frac{\nabla u}{|\nabla u|}\right) + \lambda(u_0 - u) = 0 \quad (3)$$

In urban construction, there is the continuous synthesis of new materials and the decomposition of old materials. Such repeated cycles of the work constitute the foundation of the ecosystem. Therefore, for urban ecological construction, the rational circulation of resources should be promoted, and the energy consumption of resources should be reduced, so that people can obtain the greatest benefits. In the figure 4, the parameter details are presented.

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BERT Config class with Default Parameter Values		Bert Tokenizer	BertFor QuestionAnswering
attention_probs_dropout_prob	0.1	vocab_file	input_id
gradient_checkpointing	false	do_lower_case	attention_mask
hidden_act	gelu	cls_token	token_type_ids
hidden_dropout_prob	0.1	never_split	position_ids
hidden_size	768	unk_token	head_mask
initializer_range	0.02	sep_token	inputs_embeds
intermediate_size	3072	pad_token	output_attentions
layer_norm_eps	1e-12	do_basic _tokenize	output_hidden_states
max_position_embeddings	512	mask_token	return_dict
model_type	bert	strip_accents	start_positions
num_attention_heads	12	tokenize_ chinese_chars	end_positions
num_hidden_layers	12		
pad_token_id	0		
position_embedding_type	absolute		
transformers_version	4.8.2		
type_vocab_size	2		
use_cache	true		
vocab_size	30522		

Fig. 4. The Smart Planning Detailed Parameters

2.3 The Intelligent Shared Bicycle Transportation Planning

Travel information can guide travelers to choose travel modes based on the actual travel characteristics, especially between cars and public transportation. It has been verified that provision of multi-mode public transportation information services can guide transformation of individual transportation modes to public transportation modes, and to a certain extent optimize the travel structure of urban residents. The empirical study of the impact of land use on travel is to use the land use data and travel data obtained from the field investigations to establish an analysis model, and to reveal and then verify the internal relationship between elements through mathematical relationship between the variables [26-28].

Another important research direction of travel information is how travel information updates the travel experience of the travelers. It is also generally believed that travel information mainly affects travelers' perception of current traffic situation.

For example, from the perspective of Bayesian update, travelers initially have an initial perception of some various attributes of trip, which can be expressed by the distribution probability. According to Bayesian principle, after receiving the trip information, it will be updated to a new distribution probability. When commuters make decisions about the choice of travel mode and travel chain type, it is generally believed that the choice of travel mode determines the choice of travel chain type, that is, the travel mode is then regarded as an exogenous variable in the choice of travel chain type, we first consider which transportation mode to well choose, and then complete the travel chain activity arrangement as needed under the constraints of the transportation mode.

There are also studies that believe that the travel chain is an exogenous variable in the choice of travel mode. Travelers first organize one-day activities and trips into a travel chain according to the needs of individuals and families, and then consider which mode of transportation to choose under the constraints of travel chain. In the next section, the designed model will be simulated.

3. SIMULATIONS

This section will simulate the proposed model. Usually, the space linear distance between the centroids of the cells or the shortest distance (or time) between the centroids is used as the traffic impedance between the cells. Use the spatial straight-line distance as the impedance, without considering the road traffic network between the core communities, the prediction error is large. In the lemma 4, we define the basic standard for the estimation.

$$\mathrm{SNR}_{\mathrm{RMS}} = \sqrt{\frac{\sum_{r=0}^{N-1}\sum_{c=0}^{N-1}[g(r,c)]^2}{\sum_{r=0}^{N-1}\sum_{c=0}^{N-1}[g(r,c)-I(r,c)]^2}} \quad (4)$$

In the figure 5, the comparison analytic result is shown.

Model	Positive Classified	Negative Classified	Recall	Precision	F-Measure
CNN	62.29%	37.66%	0.592	0.562	0.249
CNN with CRF	85.77%	14.72%	0.789	0.772	0.329

Fig. 5. The Comparison Analysis Result

4. CONCLUSIONS

Intelligent shared bicycle transportation planning system under the concept of the green transportation and smart cities is studied in this paper. In urban construction, there is the continuous synthesis of new materials and the decomposition of old materials. Such repeated cycles of the work constitute the foundation of the ecosystem. Therefore, for the urban ecological construction, the rational circulation of resources should be promoted. Considering this, the paper proposes the novel shared bicycle transportation planning system. We test the proposed model on complex scenarios to validate the result.

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Computer-Aided Modeling of Urban Heat Island Effect Evolution in East China in Recent Ten Years Based on Doppler Radar

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Abstract:Using "radial rectangle mapping" to convert radially distributed radar data into grid point data; complete the mapping of window mapping and isosceles triangle detection template at the same time, so as to obtain the description of the convergence intensity and position of the convergence point on the basis of quickly locating the convergence point The parameter vector of. Analyze the characteristics of urban thermal environment changes in East China. The results show that the urban heat island area in East China expanded from 2012 to 2022, especially in Changle District, Fuqing City, and Shangjie Town in Minhou County. The characteristics of urban thermal environment changes in East China were analyzed. The results show that the urban heat island area in East China expanded from 2012 to 2022, especially in Changle District, Fuqing City, and Shangjie Town in Minhou County.

Keywords: Computer-Aided Modeling, Urban Heat Island Effect, East China, Doppler Radar

1. INTRODUCTION

Fuzhou is the capital city of Fujian Province, as well as the center of finance, technology, commerce and trade and an important transportation hub in southern Fujian. In recent years, the urbanization of Fuzhou has been accelerating steadily, and the scale of the city and population has expanded significantly [1]. Among them, the urban heat island effect is a very serious urban environmental problem. With the acceleration of urbanization, the urban heat island problem has become more and more prominent, which has a serious impact on the normal life and health of urban residents, and is also widely recognized by scholars at home and abroad. Pay attention to [2-3].

In short, MARC refers to the strong radial convergence zone concentrated in the middle layer of convective storms (usually 3-9, km). Once the convergence intensity (radial convergence velocity difference) reaches more than 25,m/s, the probability of severe linear ground wind increases greatly. Hou Yiling et al. [4] conducted research using the daily average data of 11 meteorological observation stations in Shanghai and found that The urban heat island effect in Shanghai is very significant [5], and the scope is constantly expanding, and high temperature and heat wave events occur frequently in central cities. However, due to the depth of research on the formation mechanism of debris flows, the current debris flow prediction models are mostly precipitation statistical models based on the critical rainfall that triggers debris flows. The model is local and difficult to generalize [6].

The critical rainfall is based on the historical disaster events and landforms in the region. The extensive application of Doppler weather radar data can greatly enhance the detection and early warning capabilities of small and medium-scale weather systems, and is useful for monitoring short-term severe weather systems and flood disasters. It has laid a solid foundation for early warning, weather modification, and mesoscale numerical forecasting. In order to meet the requirements of frequency stability and easily detect the small frequency change of the echo signal, that is, the frequency change of the radar echo signal caused by the radial motion of the target relative to the radar, the researchers developed the research based on the Doppler effect of electromagnetic waves. Doppler radar [7].

In the 19th century, British meteorologist Lake Howard observed that the temperature difference between urban and suburban areas was 1.1°C during the day, and the largest temperature difference at night was 2.1°C, and recorded this phenomenon [8]. People first recognized this phenomenon. The population of China is also increasing (. The city has brought great convenience to human production and life, and promoted social and economic development. At the same time, it has also produced a series of urban ecological and environmental problems. When drones work, no one The micro-Doppler effect is produced by the rapid rotation of the rotor blades of the aircraft [9]. Through the Doppler characteristic information produced by the micro-Doppler effect, the structure and motion state of the UAV can be estimated. Remote sensing research on urban heat islands requires thermal infrared data. At present, the most commonly used and typical ones are the thermal infrared band and MODIS surface temperature products of Landsat remote sensing image data, which provide new ideas and methods for better research on urban heat island problems [10]. The landscape pattern is based on the methods and principles of ecology, so it is more scientific. The convergence intensity in the convective storm often has a strong predictor for the disastrous gale [11].

In 1992, Lemon et al. [12] found that there is a deep convergence zone (DCZ) with a vertical extension of 10 km at the junction of the ascending and descending airflows of the supercell. Deng Liantang et al. [13] used 30-min data from two suburban stations, The analysis found that the diurnal variation of the intensity of the heat island is obvious, with a main cycle of 24h and a sub-cycle of 12h. Generally, the heat island is stronger at night than in the daytime [14]. If the area is too small, the various indicators evaluated in the cell cannot reflect the real conditions of the development of debris flow, and make the forecast The results are overly fragmented. According to the distribution of the size of debris flow ditch

in Liangshan Prefecture, the statistical cell is set as 3km×3km, that is, the area of each cell is 9km2 [15].

In view of the current problems of scattered Doppler weather radar data management in Tibet, no unified data management system, and low data usage efficiency, we designed a reasonable Doppler radar data management strategy to effectively store and manage data for the needs of business scientific research. The process of using Doppler radar to achieve target tracking [16] has been studied by many scholars. In practical scenarios, the relationship between the signal detected by the radar and the moving target is not linear, and usually contains complex nonlinear patterns.

2. THE PROPOSED METHODOLOGY

2.1 The Doppler Radar

In a convective system, there are both updraft and downdraft airflow, and the two converge to form a convergent field, and the radial velocity component at each point of the convergent field is reflected in the radial velocity map, which is limited to the area of the convective cell. Doppler weather radar data mainly include basic data (that is, radar volume scan files, which contain radar reflection factor Z, radial wind speed V, spectral width W and other information, in binary file format), and data based on basic data through various It is impossible to directly compare and analyze the products generated by meteorological algorithms and digital image processing, and the temperature needs to be normalized and graded.

At present, there are two methods of temperature classification: one is to directly divide the study area at equal intervals according to the highest and lowest temperatures in the study area, and this method of dividing the heat island interval is contingent; During the tracking process, the influence of the strong nonlinear change of the measured signal on the target tracking accuracy, this paper proposes a sequential high-order unscented transform Kalman filter algorithm. The algorithm introduces various information of the Doppler radar to observe the target, and uses the azimuth angle in the observation equation. Since the basic data is in binary data format, professional software is required to read the useful information. For the sharing and use of data, the system develops a background data processing system to extract the most important radar reflection factor Z in the basic data in real time. In recent years, the number of grids of heat islands with relative brightness temperatures between, strong heat islands with relative brightness temperatures between, and extremely strong heat islands with relative brightness temperatures have all shown a decreasing trend, indicating that the distribution range of heat islands with higher intensity is reduce. Due to the large amount of basic data, in order to facilitate storage, the system adopts compression technology, develops an automatic data compression processing module, and effectively compresses the basic data and stores it; there are various state components in radar observations, and the conventional method is to compress these state components together. deal with. In Doppler radar, sequential thinking can be used.

2.2 The Urban Heat Island Effect in East China In The Past Decade

Remote sensing research on urban heat islands requires thermal infrared data. At present, the most commonly used and most typical ones are thermal infrared bands and MODIS surface temperature products of Landsat remote sensing image data. The dominant heat island landscape types (types 4, 5 and 6) have an extremely important impact on the development and evolution of the urban heat island effect in Tianjin. The change process and development trend in the past 10 years are shown in Figure 2) describes the type area of the heat island landscape. Looking at the convergence zone in the convective cell from the perspective of the image, it is actually the junction of the adjacent parts of two velocity areas with a specific azimuth relationship. The matching calculation of the value can know whether there is a strong convergence. According to the characteristics of Doppler radar data, the system is developed by the combination of B/S (browser/server mode) and C/S (client/server mode). The shared application system is developed in B/S mode, and the data management system is developed in C/S mode.

There are two methods for urban heat island zoning. The first is to directly classify the surface temperature after inversion; the second is to normalize the surface temperature and then classify it according to the temperature. Since the acquisition time of the three remote sensing images used in this paper is 1995, 2007 and 2017, the time span is relatively large. The images are supervised and classified to extract the spatial distribution range of urban green space. The results are shown in the figure. After extracting the range of green space, calculate its area, and quantitatively analyze the development and change laws of urban green space in the study area in recent years.

The micro-Doppler frequency of the multi-rotor is a curve transformed by a sine function, and the frequency of the sine function □ is the same as the angular frequency of the blade rotation. When the UAV rotor rotates, the speed at the tip of the blade is the largest, so the corresponding Doppler frequency is also the largest. At present, the commonly used atmospheric correction methods include the radiative transfer model method, the dark pixel method, and the statistical model method. In this study, the FLASH atmospheric correction method was used to perform atmospheric correction on the images. This method is based on the MODTRAN4+ radiative transfer model and can effectively remove the scattering effects of water vapor and aerosol in the atmosphere.

2.3 The Computer Aided Modeling of Heat Island Effect Evolution

In this section, the effectiveness of the proposed method is verified by simulation, and the proposed improved algorithm (SHUKF) is compared with higher-order unscented Kalman filter (HUKF) and statically fused transformed Kalman filter (SMCMKF). Using remote sensing information to extract water bodies generally adopts a multi-band combination method, and calculates the ratio of the water body's reflection and absorption of sunlight. From the wavelength range, it can be known that the water body has the weakest reflectivity in the mid-infrared band, the highest absorption rate, blue and green The light band has the strongest reflectivity. The distance of the cooling effect of the green space is closely related to the factors of the green space itself and the layout of the construction land around the green space. Here, the relationship between the green space area and the cooling effect distance of the green space is discussed first.

In this paper, the green space action distance adopts the interval expression form, which is a qualitative expression. In order to study the specific cooling action distance, the cooling distance expression form is quantified. The distance from the radar to the UAV is 200m, the radar azimuth □ is 0□, the pitch angle is 20□, the UAV translation speed is 0, and the number of rotors is 4, among which the rotors 1 and 2 rotate

counterclockwise, 3 , 4 is clockwise rotation, the frequency of rotor rotation is 40r/s, the initial rotation angle of each rotor blade is 0, and the length of each blade is 12cm.

3. CONCLUSIONS

A "radial rectangle map" is constructed to map the volume scan data of the Doppler radar in the ray distribution into grid point data, which is convenient for the design and implementation of the image processing algorithm. The urban heat island effect is also increasing. In the past ten years, the area of the urban heat island has expanded by 372.71 km2. Although the high-order unscented Kalman filter (HUKF) has a fast convergence speed at the initial position, due to the large amount of nonlinearities in the processed information, the performance of the high-order unscented Kalman filter (HUKF) in the processing process is high. Not stable. The temporal distribution characteristics of the heat island effect were studied, and the mean-standard deviation method was used to divide the surface temperature in the four seasons of spring, summer, autumn and winter in the study area. 17.80%.

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Remote Sensing Image Evaluation of Wetland Plants for Ecological Restoration of Constructed Wetlands Based on Computer Technology

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Abstract:In recent decades, wetland treatment systems have been widely used in sewage treatment, and pollutants can be removed through the retention, sedimentation, absorption, and transformation of substrates, plants, and microorganisms. Wetland plants play an indispensable role as an important part of it. This article briefly introduces the basic types and principles of phytoremediation. The construction of artificial wetlands is the main cornerstone of building a good ecological environment, and protecting the ecological environment is equivalent to protecting our homeland. In recent years, my country has gradually applied the wetland treatment system to sewage treatment, and removed harmful pollutants through the transformation of plants, microorganisms, and substrates.

Keywords: Remote Sensing Image Evaluation, Wetland Plants for Ecological Restoration, Constructed Wetlands, Computer Technology

1. INTRODUCTION

In the context of the information age, the ecological environment planning cannot be separated from the support of computer information technology [1]. Only by fully coordinating the relationship between the development theory of the ecological environment and computer information technology [2] can the scientific and accurate ecological environment planning be guaranteed. Information technology can provide precise databases and precise calculations for planning. Constructed wetland is a brand-new ecological project [3], which constitutes an organically combined ecological complex by systematically imitating natural ecological wetlands, including aquatic plants and animals and other ecological resources [4]. Constructed wetlands can reasonably control the sewage within the wetland, and can also control the sludge reasonably, which can protect the vegetation. Constructed wetlands are man-made ecosystems created by microorganisms, plants and substrates in a certain way [5].

In 1953, the MaxPlakc Institute in Germany obtained certain research results [6]. In 1972, Kickuth and Seidel proposed artificial wetlands. The theory of wetland sewage treatment technology has deepened people's ability to treat wetland sewage [7]. Constructed wetland is an artificial complex ecosystem composed of substrates, microorganisms and plants configured in a certain way. The origin of this technology can be traced back to the Max Plack Institute in Germany in 1953 [8]. In recent years, the issue of ecological environment planning is an important subject of research, one of the important ways to coordinate the relationship between the national economy and social development, and an important link to realize the sustainable development strategy between the ecological environment and the social economy [9]. In the process of planning the ecological environment, it is necessary to rationally arrange the activities of social economic and ecological planning in time and space [10].

Under the influence of Cruikhoun on the cultural system, Niu Ruchen believes that the phenomenon of place names can also be regarded as a system, which includes proper names, generic names, place name affixes [11], abbreviations, elegant names, common names, full names, old names and other factors. Since the birth of GIS (Geographic Information System) in the 1950s, the geographic information industry has gradually developed and [12] expanded with data as the core. Its main businesses such as collection, inspection, processing, database building and distribution services are all closely related to data. Data is the soul of the geographic information industry [13]. It is particularly necessary to establish a reliable big data analysis model to effectively process and analyze the relationship between data. Big data is typical unstructured data, and there are many difficulties in data analysis. [14]

Only scientific planning can ensure the effectiveness of planning. Constructed wetlands can absorb impurities, carry out oxidative decomposition and filter plants, and play a role in the overall construction of the ecosystem. Constructed wetlands have a larger area to deal with current sewage problems, so they have greater advantages in the field of protecting and promoting the diversity of ecological resources. Constructed wetlands are ecological projects created through human factors. They are complexes that imitate natural wetlands and combine plants, animals, water quality, etc [15]. and effectively control sewage and sludge on the ground and use them when they flow. Soil, plants and substrates intercept sewage and sludge to oxidize, precipitate, decompose and filter [16]. Constructed wetlands were officially introduced as an independent water treatment technology in the root zone theory proposed by Seidel and Kickuth in 1972 [17]. Plants are one of the constituent elements of wetland systems and are most affected by geographical and natural conditions [18].

but human intervention in plant management is possible. By understanding the status quo and impact of social, economic and environmental aspects, analyze the status quo of the ecological environment, and predict the future development trend, so as to take active countermeasures and provide reasonable and scientific solutions for the implementation of sustainable development strategies. Development Strategy. The essence of ecological environment planning is to make the ecological environment and the economy and society develop in harmony. Humans need to pay attention to various capitals in survival. Wetlands are the main environmental

capital and are also ecosystems with high productivity and various types of organisms. Wetlands not only have abundant natural resources.

2. THE PROPOSED METHODOLOGY

2.1 The Remote Sensing Image Evaluation

It can be said that different types of wetlands play an active role in human production and daily life, such as providing abundant water resources. Wetland is the most important environmental capital for human survival, and it is also an ecosystem with high productivity in nature. It has the characteristics of biodiversity and can effectively regulate the environment and improve ecological benefits. Wetlands play an important role in regulating climate, providing sufficient water resources, preventing floods, conserving water sources, degrading pollutants, protecting biodiversity, and providing living resources for human beings. Phytoremediation technology is to reduce the concentration of organic and inorganic pollutants in water bodies through plant metabolic activities, so as to relieve the self-purification pressure of natural water bodies, and then achieve the purpose of controlling environmental pollution. In order to ensure the rationality of the arrangement.

It is necessary to refer to the relevant laws and regulations and the current actual situation in various aspects when formulating the plan, and make an analysis. Only when the planning can be reasonably arranged according to the actual situation, can a good foundation be laid for the smooth progress of each work. Wetland vegetation is an important component of the current construction of artificial wetlands, and it is also a natural plant that must be planted, reflecting the importance of several aspects. First, wetland plants can absorb certain nutrients, and the roots can provide a good environment for the survival of microorganisms and the degradation of nutrients in water, which is conducive to the balanced development of the ecological environment. Inorganic pollutants are different from organic pollutants, and their remediation processes are also different. There are two main principles for the remediation of inorganic pollutants.

The first is mechanical handling, which is to remove pollutants from the soil through machinery, and the second is to reduce pollutants. the activity of it to transform it into a biologically inactive state. The method of removal is mainly carried out by means of harvesting. Pollutants are ingested by roots, stems, leaves and other organs, enriched in plants, and finally removed by harvesting, reducing the chance of artificial contact with pollutants in the whole process. After harvesting, reducing its volume or weight by crushing, incineration, etc., will reduce subsequent processing costs, and recovery is also valuable for certain heavy metals such as Ni, Zn, and Cu. In terms of ecological environment management, the integration of information technology into urban greening management, and the programmed and intelligent management of vegetation can greatly improve the convenience of ecological environment management and effectively improve work efficiency while reducing labor costs. 2) In ecological quality monitoring.

2.2 The Wetland Plants for Ecological Restoration

Computer information technology has powerful databases and information storage channels to ensure the timeliness of news. Plants are an important part of the ecosystem, releasing oxygen and purifying the air, and at the same time maintaining the ecological balance. The wetland vegetation is an important factor in the current water and land system, and it plays a role in restoring the ecological environment. Wetland organisms play an important role in the restoration of the ecological environment of constructed wetlands. For example, Xiaocizao plays a positive role in the improvement of water quality. The leaves, stems, and roots of plants absorb pollutants, enrich them in the body, and then harvest them after they mature naturally, so as to achieve the effect of removing pollutants. In this process, it can effectively reduce the direct exposure to pollutants.

After harvesting, its weight and volume are reduced by methods such as incineration, thereby reducing the later disposal costs. The transfer law of organic pollutants in the environment mainly depends on the molecular polarity, surface charge and other characteristics of the pollutant molecules, as well as the ability of soil to absorb and chelate them, soil structure properties and pH value. From these parameters, it is inferred that the use of plants to solve environmental pollution is region-specific. This ensures the timeliness and accuracy of ecological detection information. 3) In the protection of wild animals, the computer positioning system can be fully applied, and the actual distribution and real number of wild animals can be known in time, so that the formulated protection plan can be effectively implemented. Bioremediation technology refers to the remediation technology that directly adds microorganisms to the polluted water body.

2.3 The Constructed Wetlands Based on Computer Technology

The key point of wetland soil remediation technology is the combined application of biological and ecological means. Through the use of chemical agents and biological agents, the state of wetland soil pollution is improved, and the use function of soil is improved and restored. Information technology has accelerated the process of urbanization, but it has transformed the fields that used to be covered by a large amount of vegetation into buildings made of reinforced concrete.

The urban heat island effect is becoming more and more serious, which seriously affects the living environment of wild animals and plants, resulting in a serious imbalance in the ecological environment. However, there are many factors affecting soil ecological restoration, and the restoration process is not easy to control. Although many researchers have carried out the development and research of this technology, due to the influence of various factors, so far, there has not been much progress, and there is no feasible solution. Application of technical achievements. The so-called ecological environment planning refers specifically to the reasonable arrangements made by human beings to promote the ecological environment and economic and social development. The planning objects have the characteristics of space, time, structure, and attributes, etc. specialty. In the era of information technology, only by making full use of advanced technology can the rationality of ecological environment planning be effectively promoted. Due to the different types of wetlands.

There will be differences in ecological functions, so the degradation mechanisms of wetlands will also be different, which cannot be judged according to the mindset. The repair mechanism research should not be carried out hastily, and the research plan should be refined on the basis of evaluation and investigation. Under the background of the information technology era, the speed of information acquisition and

collection has been continuously improved, so that the theories and methods of ecological environment planning have been continuously updated and improved. Ecological environment planning breaks the traditional limitations and can be displayed intuitively through tables and figures, which facilitates the acquisition of relevant information. Small wetlands refer to small wetlands with relatively stable ecosystems formed during the long-term evolution in nature, such as river bays, ponds, fish ponds, ditches, etc.

This type of wetland has many functions, a large number, and a wide distribution. However, there are few researches on this type of wetland by scientific researchers, and people's understanding also has a certain deviation. A large number of small and micro wetlands are gradually decreasing, and protection and management are lacking. Ecological agriculture is an important part of the ecological environment; therefore, ecological agriculture has a great impact on the ecological environment. In the specific planning process, the data processing advantages of the computer should be fully utilized to quickly analyze and process the huge data. Therefore, in the application of ecological agriculture.

3. CONCLUSIONS

Nowadays, artificial wetland technology is not only limited to sewage treatment, but more development direction is biased towards the construction of wetland parks that integrate sewage treatment and urban landscape. Therefore, wetland plants should not only consider the original decontamination effect, but also take into account the needs of the landscape to achieve the development trend of building livable homes. At present, wetland plants in the ecological environment of artificial wetlands are no longer simply limited to sewage treatment, but more gradually incorporate urban landscape and ecological environment into construction, not only to consider the decontamination ability, but also to consider the landscape. demand, thus creating an ecological environment park integrating leisure, entertainment and governance.

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Remodeling and Optimization of The Animation Intelligent Oriental God Painting Prototype Based on OpenGL

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Abstract:In this paper, a fountain model based on OpenGL particle system is designed, the properties and changes of particles in the model are discussed in detail, and the fountain features such as dynamic changes and parabolic changes with strong realism are realized. It has always been loved by the world. After the 2015 animated film "The Return of the Great Sage" gained a good reputation for the remodeling of Monkey King, in 2019 "Nezha: The Devil's Child Comes into the World" once again successfully reshaped another oriental mythological prototype with a rebellious spirit, Nezha. Embed algorithms such as forward and inverse kinematics, trajectory planning, and collision detection of robots to realize multi-robot 3D virtual simulation, offline programming and virtual teaching, and perform experimental verification of a single entity robot.

Keywords: Remodeling and Optimization, Animation Intelligent Oriental God, Painting Prototype， OpenGL

1. INTRODUCTION

With the continuous improvement of computer simulation technology, people have higher and higher requirements for the simulation of real things, and the importance of simulation technology has become more and more prominent, especially in 3D games [1], military exercises and simulation experiments. To seek mathematical models that can accurately describe various phenomena and landscapes in the objective world, through investigation and research on the relevant research and implementation status of domestic and foreign scientific research institutions and enterprises, according to the existing research results [2], it is concluded that the multi-robot virtual simulation experiment There are mainly five kinds of platform implementation schemes: with the help of professional robot workstation. This kind of software has high requirements on the real-time graphics display capability of the computer [3].

Graphics display is a typical performance-intensive application, and the level of image rendering performance can express the comprehensive performance of computer hardware and software. Under the condition that the hardware configuration is relatively fixed, the performance optimization at the software level plays a decisive role. China's mythological system has never been single [4]. This article discusses the mythological prototype of Nezha as an example. Nezha first appeared in China because of the introduction of Buddhism from India. In Buddhism, Nezha is a worshiper of Sakyamuni. The mythical Nezha is the Dharma protector of Buddhism, and the prince of the northern king of Bishamon. His duty is to protect the Dharma, eliminate evil, and protect the world [5].

Among them, the most representative is the film "The Devil Child of Nezha Comes into the World". There are many elements of traditional Chinese art in contemporary Chinese animation films, which have distinct national cultural characteristics and are unique [6]. The author takes "Nezha's Devil Child Comes into the World" as an example to analyze the influence of traditional art in contemporary animation. That is, the pursuit and struggle for self and destiny, but on top of this, combined with the current social background, it presents a more profound practical significance. With a progressive narrative rhythm and a creative image tone, the film attempts to build a fantasy space with historical texture and detachment. Yang Yi's "Chinese Narratology" (1997) [7] discussed the issue of Chinese narrative tradition in combination with the discourse of Western narrative theory, and Dong Naibin's "Research on Chinese Literary Narrative Tradition" (2012) [8] questioned Chen Shixiang's assertion that Chinese narrative tradition is a "lyric tradition".

As a rare "phenomenal" animated film in recent years, "Nezha's Devil Child Comes into the World" has won the domestic box office chase. From the perspective of the film's narrative methods [9], character modeling, and audio-visual modeling, it is obviously influenced by animation in other Asian countries and Western countries. Animation narrative research is to use the research results of narratology theory to conduct textual analysis on animation art and its culture related to narrative. Research belongs to the category of film and television narratology [10]. As for film and television narratology, it is generally considered to be first mentioned by Metz's "Film: Language or Language System" (1964). In order to conform to the aesthetic characteristics and aesthetic spirit of the times, more or less in film narration The archetype of the hero will be reshaped [11].

In the development process of domestic animation films, some specific mythological character prototypes with personality and spiritual charm are often requisitioned and rewritten. These characters are mostly known to every household due to the dissemination of literature and film and television. What is the particle system [12]? The so-called particle system is to describe the movement of objects and natural phenomena seen by people with a series of moving particles, and then map the trajectory of these particles to the display screen. Offline programming software (such as RobcAD, workSpace) [13], features It is because the underlying algorithms of commercial software are not open, and users cannot embed their own control algorithms for algorithm analysis; Professional kinematics and dynamics analysis software ADAMS is used [14].

According to the classification of CPU, the current mainstream domestic computers mainly have the following three categories. Feiteng processor series CPU domestic computer, Feiteng processor is developed by National University of Defense Technology, compatible with ArmV8 instruction set released in 2011, the typical model is Feiteng 1500A, with 16 cores, main frequency 2GHz [15]. The first major evolution in the image of Nezha's mythology came with the evolution of Li Jing into the Heavenly King Bishamon. Li Jing was a famous military scientist in the Sui and Tang dynasties, and Emperor Gaozong of Tang praised him very much, and the Tang Dynasty even enshrined him as Duke Wei. After the deification of the Tang Dynasty, there are four main sources of themes for traditional Chinese animation, namely folklore, fables, traditional literature, and myths." Chinese classic novel "Fengshen Romance" [16].

2. THE PROPOSED METHODOLOGY

2.1 The OpenGL

OpenGL also defines the concept of a local coordinate system. The so-called local coordinate system, that is, the coordinate system takes the center of the object as the coordinate origin, and operations such as rotation or translation of the object are performed around the local coordinate system. The time statistics module is used for statistical algorithms Program run time. The number of clock cycles in which the program code runs is obtained by obtaining the value of the CPU counter twice before and after the code is executed, and then a clock cycle time is calculated by the CPU frequency. For the data storage, data calculation, data submission and other stages in the typical rendering process of OpenGL, combined with the author's work Based on the optimization experience of OpenGL display software in China, the following five typical key aspects of possible performance problems have been extracted.

At this time, when the object model performs operations such as rotation or translation, the local coordinate system also performs corresponding rotation or translation operations. It should be noted that if the object model is scaled, the local coordinate system must also be scaled accordingly. The graphics processing layer realizes realistic 3D multi-robot 3D motion simulation, including drawing robots and working scenes, performing graphics rendering, establishing Multi-robot virtual prototype. The CAD interface is used for data connection with mainstream 3D design software. Before the OpenGL client performs vertex coordinates, texture coordinates, and color matrix calculations, it first stores the original coordinates of the rendering object in memory.

For example, if you want to draw some points on the screen, you must first store the original coordinates of the drawn points in the memory, and you need to use a software container for data storage. All particles are stored in a particle group, which is a group of particles with the same force gather. Users can define multiple particle groups with different behaviors to be called separately, but only one particle group can be active at a certain time. It is a key step in software development to build a virtual prototype of a robot with controllable motion in the OpenGL environment. OpenGL only provides some simple drawing commands (points, lines, polygons), and it is not convenient to directly draw models composed of multiple parts and complex surfaces such as robots and work scenes.

2.2 The Nezha's Devil Child Comes into the World" Animation Intelligent Oriental God Painting Prototype

This animated film subversively adapts the two characters of Nezha and Ao Bing in the novel. The two protagonists are both good and evil. At the end of the film, they abandon their previous hatred and agree with the outside world, which makes the film's thinking reach a new height, showing the spirit of freedom, independence, courage and struggle of contemporary youth.

The prototype of the bronze enchantment beast that appeared in the film came from the golden mask and Sanxingdui bronze statue unearthed from the Jinsha site in Chengdu, which clearly reflected the heavy and simple bronze ware production characteristics in ancient my country, and demonstrated the cultural crystallization of the ancient Shu civilization.

On the one hand, the animated film "Nezha's Devil Child Comes into the World" takes real life as a frame of reference, and strictly follows the appearance, endowment, joys, sorrows and joys of ordinary people to shape the characters' appearance, typical expressions, typical actions, and language characteristics. The character image is set with reference to the possibility of real life. Nezha is a very classic character image in Eastern mythology. "Nezha" means "nuo", the word means to drive away evil spirits, and the word "Zha" is the beginning of heaven and earth The first sound of the character also refers to justice. The combination of the two characters Nezha means everything is unfavorable and unstoppable. The characters of traditional animation often reflect the traditional virtues of the Chinese nation, such as kindness and integrity, industriousness and bravery, and fearlessness of power. 1. The traditional animation shows the traditional Chinese view of good and evil, that is, good will conquer evil, thus sublimating the theme of the film. Its shape also reflects the Yangshao wine culture in traditional Chinese culture.

In the film, Nezha swims freely under the leadership of Master Taiyi Zhenren, and its vast landscape and artistic conception is very oriental. In the original work "Fengshen Romance", there are only a few descriptions of the map of mountains and rivers, and director Yang Yu draws on Chinese bonsai art in the creation of the picture. In the new stage of globalization, we need to re-understand the dissemination of knowledge, which It is no longer a one-way cultural hegemony centered on the West for a long time, but a multicultural symbiosis, coexistence, sharing and progress of human knowledge dissemination. As Fei Xiaotong said, "each has its own beauty, and the beauty shares its beauty".

2.3 The Research on the Remodeling And Optimization of The Prototype of Animation Intelligent Oriental Painting

Traditional Chinese animation films contain the unique emotional characteristics of the Chinese nation, the most representative of which is the traditional Chinese philosophical thought of "harmony between man and nature, all things have animism". It also represents the flow and lightness of water. The dialectical relationship between water and fire represents the concept of yin and yang in traditional Chinese Taoism. It is mentioned in "Book of Changes" that "one yin and one yang are the Tao." This is manifested in three aspects: first, although the story itself has a strong local mythological prototype, it adopts the old way of narration in the way of narration. The grand narratization and even de-exoticism make the family and the individual the focus of the

narrative, which minimizes the limitations of context on reading movie stories.

This causal and causal contradictory setting embodies the fate of Nezha and Ao Bing that are destined to be inseparable, and also metaphors the unique interpretation and expression of "fatalism" in Eastern culture. Once upon a time, the "originality theory" has influenced an entire generation of young people, and it still has its own discourse market. In the film, Nezha was born with a "born" label labeled "magic". He was possessed by a magic pill by accident, so he carried innate misunderstanding, prejudice and even discrimination. As a typical hero image in traditional oriental mythology, the prototype of Nezha has the brave and fearless spirit known to the world, and at the same time, it also has the spirit of "rebellion". The more classic characters have certain similarities.

With the progress of the climax, the symbolic meaning of "anti-mandate" carried on the image of Nezha has been further deepened. Nezha's character also has a radical and impatient side, and because of this character, he has misunderstood the good intentions of his parents. The extensive and in-depth interaction of Chinese animation and Chinese films with the international market in recent years has laid the foundation for the birth of "The Devil Child of Nezha". The story can be local, but the production must be international, which has become a law in the film market.

3. CONCLUSIONS

This paper expounds the simulation implementation of the particle system based on OpenGl. First, it introduces the development of graphics and the overview of OpenGL. Through the introduction of the basic knowledge of OpenGL scene coordinate system and projection, this paper expounds the simulation implementation of the particle system based on OpenGl. The development of graphics and an overview of OpenGL, through the introduction of the OpenGL scene coordinate system and basic knowledge of projection, and the creation and development of a series of domestic animations of the same type, the creative idea of adaptation is adopted to adapt to the mainstream aesthetics of the film market and the audience's viewing. Demand has gradually become the preferred way of expression for creators.

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Analysis of Enterprise Management Mode and Enterprise Management Innovation Measures under the New Economic Normal

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Abstract: Land subsidence is a significant problem in many rural areas, and its management requires accurate and timely monitoring of the subsidence-prone areas. In this paper, we propose the design of a digital display platform for rural subsidence space optimization from the perspective of national space. The proposed platform leverages remote sensing data and machine learning algorithms to monitor subsidence-prone areas, identify the causes of subsidence, and develop strategies for land management and soil conservation. The platform can contribute to achieving sustainable development in rural areas by improving agricultural yield, enhancing the ecological environment, and promoting sustainable land management.

Keywords: digital display platform, rural subsidence, space optimization, remote sensing, machine learning, sustainable development, land management, soil conservation

1. INTRODUCTION

In the new era, China is in a stage of economic transformation, and the market economy system is constantly improving and developing. Enterprises must combine their own actual situation, grasp the pulse of the times, achieve development and innovation in economic management, and promote their own healthy development. At the same time, enterprises need to rely on their own strength, strengthen research on management models and systems, and identify weak links to improve and establish new economic management systems and systems, improve their competitiveness, and achieve stable and healthy development.

The new normal of the economy refers to a situation where the economy will be in a state of low growth, high unemployment, and high risk in the capital market for a considerable period in the future. This is an uncommon or even unfamiliar situation, commonly referred to as a sub healthy state of the economy. It will not cause financial or economic crises but is highly prone to debt crises. The technological progress and productivity improvement of society are still ongoing, as if the development of the entire economy is not directly related to an increasing number of people. Business management can effectively reduce the management and operational costs of enterprises. In the context of the new economic normal, adopting business management measures can carry out systematic management of enterprises, control and manage enterprise costs.

Business management can effectively control enterprise costs, manage, and arrange various tasks of the enterprise, especially for enterprise departments. It can ensure comprehensive management of internal departments and reasonable allocation of resources, fundamentally reduce management and operational costs of the enterprise, and significantly improve the operational efficiency of the enterprise. A good financial management strategy plays a crucial role in the development of a company, which is an important economic lifeline for its survival and an important indicator of its internal composition. If a company wants to achieve sustainable and healthy development, then business managers should attach importance to the internal financial management methods of the company, achieve clear rewards and punishments, and set a good example for employees.

To stimulate employees' work enthusiasm and avoid situations where laziness leads to burnout. To improve the efficiency of enterprise financial management under the new economic normal, it is necessary to implement business management within the enterprise, which has a positive promoting effect on the development of enterprise financial management. Financial status is an important indicator reflecting the operation and management of enterprises. The success or failure of financial work management directly affects the development ability of enterprises. Therefore, enterprises pay more attention to their own financial management related matters to avoid various adverse financial situations. Through business management, it has been found that the level of financial management in enterprises has a direct impact on their development.

Through internal business management, one can grasp the basic financial situation of the enterprise, utilize business management to enhance the effectiveness of financial management, improve the efficiency of enterprise management, help optimize capital structure, achieve scientific management, and achieve sustainable development of the enterprise. In the daily economic management of enterprises, the management philosophy and ideological awareness play an important leading role, and the main reason for the low level of economic management is due to the outdated concepts of enterprise managers, lack of active learning awareness, and lack of innovation in ideas combined with forms and tasks.

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2. THE PROPOSED METHODOLOGY

2.1 The Importance of Innovative Economic Management in the New Normal of the Economy

Under the new normal of the economy, due to the transformation of the economic environment, enterprises must actively innovate their ideas, learn from, and absorb some advanced concepts and ideas, and keep up with the times. They should also carry out various management activities through a new perspective and thinking, improve the innovative spirit and competitive awareness of enterprise personnel, and provide a theoretical basis for various economic and management activities of enterprises, promoting the healthy development of enterprises. Doing a good job in business management can ensure the safe development of enterprises in the new economic normal and reduce their financial risks. Therefore, in the process of operation, enterprises should fully attach importance to business management work, strengthen the professional quality of management personnel, enhance their work awareness, and seize important magic weapons for the stable development of enterprises in the new era. The new normal of the economy emphasizes sustainable growth of the economic structure in a stable environment, rather than a total economy. To adapt to this trend, enterprises must rely on business management to lay a solid foundation for their development at different stages.

At the same time, business management can also predict and timely identify a series of internal problems within the enterprise and solve them as soon as possible. In the face of all economic challenges, it can make predictions in advance and resist them, weaken the risk level of the enterprise, restore its stability and coordination, scientifically plan its future development direction, and ensure the stable development of the enterprise no matter how rampant the external economic environment may be. The main body of enterprise business management is the staff, who are the fundamental and main body for executing and carrying out management work. Therefore, the professional knowledge, comprehensive quality, work level, and methods of enterprise business management staff directly affect the quality of enterprise business management work. However, the professional quality of business management personnel in some enterprises is relatively poor, leading to a decrease in the level of their own business management work.

Some enterprise leaders have overlooked the importance of business management and have not given sufficient attention to it. They have not provided financial and material support for business management personnel, resulting in the enterprise's own business management work becoming more formal. In the process of enterprise development, the current situation of the market economy is constantly changing, blindly following a fixed direction may lead to less-than-ideal results. The market is dynamic and requires business management personnel to adjust the development direction of the enterprise in a timely manner based on actual conditions. In addition, clear development goals should be established, targeted operational measures should be taken to promote the rapid and stable development of the enterprise. In the process of enterprise operation, it is inevitable to encounter problems or loopholes. In this regard, management personnel should respect market laws and make timely adjustments, collaborate with multiple departments, and work together to solve various unexpected problems.

2.2 Innovative measures to address business management issues in enterprises under the new economic normal.

In the international trade market, China's economy and trade are subject to many restrictions, not only on the quantity of exports, but also on the amount of trade. Therefore, China's development in international trade is not very smooth. In the past 2018-2019, international economic and trade have experienced a decrease in economic development speed amidst fierce market competition. Old brand enterprises that have undergone market baptism are also facing economic losses and reduced income, which has a certain negative impact on the growth of the national economy. Although the country has proposed various measures to promote economic development and activate the market atmosphere the measures taken have not had significant effects.

Due to the new normal of the economy, the economic environment has undergone certain changes, and the management and economic environment of enterprises have also undergone corresponding changes. Enterprises need to combine environmental changes to formulate feasible and scientific development strategies, to respond to the challenges and opportunities that arise in the new era, adjust their own strategic development goals, judge the forms and tasks of economic development, and strengthen the forward-looking and global nature of the strategy, Reflect the effectiveness of the strategy through market promotion and brand advantages. At the same time, in the process of formulating development strategies, enterprises should fully combine their own business level and actual situation, highlight the characteristics of the enterprise, and thus meet the established profit goals.

In the process of implementing and constructing economic management strategies, enterprises should evaluate the market economy and industry development based on the actual situation of the market economy, ensuring the scientific and reasonable nature of the established strategy. Based on the innovative path of business management, talent is the source of all work. While improving business management work, enterprises should increase talent cultivation efforts, develop scientific training models, optimize talent cultivation channels, innovate their work thinking, improve work mechanisms, and enhance management effectiveness. From the perspective of enterprise operation and management, innovation in business management is the innovation of talents. Talents are the specific executors of work and the link between the enterprise and the market, which has certain constraints on the production and operation of the enterprise. In the context of the current economic new normal, with the rapid development of society, people have gradually realized the importance of innovation awareness, and enterprises have also realized the enormous economic benefits that innovation awareness can bring.

Therefore, to innovate the business management work of enterprises themselves, it is necessary to strengthen the innovation awareness of business management personnel and comprehensively enhance their professional literacy. For a long time to come, the leadership of enterprises must attach great importance to business management work, clarify the importance of continuing education and training for business management personnel, provide sufficient financial, human, and material resources to improve the business management work of enterprises, and raise the entry threshold for business management departments. In addition, regular training is provided for business management personnel, providing

opportunities for communication and exchange with other business management personnel, and giving them the opportunity to step out of the enterprise and enter the market.

Innovation cannot do without talent, and innovation requires the power of talent. The development and growth of an enterprise are closely related to its innovation. Therefore, in the operation and management of enterprises, talent management is particularly important, and the leadership of enterprises should abandon traditional talent concepts. Increase talent introduction efforts and recruit talents with rich experience in business management, focusing on talent treatment.

3. CONCLUSION

Under the new normal of the economy, industry competition is becoming increasingly fierce. If enterprises want to seek better development, they must combine their own actual situation, innovate from the aspects of organization, manpower, strategy, system, and philosophy, ensure the orderly development of various management and economic activities, and achieve the improvement of the core competitiveness of the enterprise. Enterprise business management personnel are required to innovate in various aspects such as business management concepts, strategies, and plans, adhere to the combination of innovation and enterprise reality, and market economy, and drive overall innovation of enterprises through business management innovation to ensure sustainable and stable progress and development of enterprises under the new economic normal. In practical work, business managers in enterprises can only fully leverage the role of business management by integrating the two and conducting objective analysis, thereby improving the comprehensive strength and competitiveness of the enterprise and promoting the comprehensive development of the enterprise in the context of the new economic normal, achieving the grand goal of sustainable development of the enterprise.

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Research on the Optimization of Industrial Upgrading Paths in the Western Region under the Background of Carbon Neutrality

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Abstract: Against the backdrop of achieving carbon neutrality by 2060, the dual pressures of ecological and economic sustainability in the central and western regions urgently need to be alleviated. Therefore, based on the perspective of industrial development and urbanization, the provincial Panel data from 2000 to 2018 in the central and western regions are used to build a spatial lag model to simulate the spatial relationship between industrial development, urbanization, and carbon emissions. The challenges faced by industrial development in the central and western regions are a microcosm of the prominent problems exposed in China's current economic development. Analyze the problems and constraints of industrial structure optimization and upgrading, and propose corresponding countermeasures and suggestions, to be helpful for the adjustment of industrial structure in the central and western regions.

Keywords: Industrial Upgrading, Western Region, Carbon Neutrality

1. INTRODUCTION

Reducing carbon emissions and achieving "carbon neutrality" has become a global consensus to jointly address climate change. On September 22, 2020, China also proposed at the United Nations General Assembly that "CO2 emissions should strive to peak before 2030 and strive to achieve 'carbon neutrality' by 2060", which has become the will of the whole nation. To this end, China has proposed relevant policies for phased optimization and adjustment of industrial structure, and advocated energy-saving and low-carbon lifestyles.

However, most of the leading industries in the central and western regions of China are heavy chemical industries, which are characterized by high input, high output, and high pollution. They are mainly heavy industries such as Coal mining and coking. The rapid development of heavy industry depends on many mineral resources consumed and relatively low production costs. The extensive economic development model is manifested in the following aspects: the economic development mode and industrial structure are single, the ecological environment is damaged, and the gap between rich and poor is widened, it has also become a major issue restricting the new round of economic growth in the central and western regions. As the country with the largest carbon dioxide emissions in the world, China has various fossil energy industries such as chemical, petroleum, coal, steel, electrolytic aluminum, etc. These industries account for about 80% of the total carbon dioxide emissions in the country and are pillar industries that promote social and economic development.

The proposal of the concept of "carbon neutrality" and low Carbon cycle will force hundreds of coals, oil, and gas enterprises, such as Sinopec and PetroChina, to make in-depth changes in their own investment decisions, industrial structure, production and operation methods, asset allocation, etc., such as replacing or closing energy intensive industries with high carbon emissions. Under the framework of the global value chain, the production activities of a certain product are realized globally. The activities of a country or enterprise are a part of the global value chain, jointly participating in the production and value creation activities of a certain product. The value creation determines the position of the country or enterprise in the global value chain.

If a country or enterprise is not competitive in the value chain, it can only exist at the bottom of the value chain and obtain a small increase in value. Enterprises in the western region undertake industrial gradient transfer as a certain link in the global value chain, and their value creation depends on their position in the value chain. At the same time, with the acceleration of urbanization and the growing importance of cities in the global Carbon cycle, many scholars have studied the role of urbanization and carbon emissions using different models in different research regions and levels, such as national, provincial and urban levels, combined with different types of data.

The research results confirm that there are spatial differences in the impact of urbanization on carbon emissions The construction of the "the Belt and Road" has become China's opening strategy under the new situation, which is of great significance in expanding the influence of opening up in the central and western regions and improving the level of economic development in the central and western regions. Shaanxi, Gansu, Qinghai, Ningxia, Xinjiang and other provinces play an important role in connecting with the traditional Eurasia Continental Bridge in the construction of the "New Silk Road" economic belt. However, the strategy of cultivating strategic and competitive Sex industry in the central and western regions is not obvious enough. It lacks initiative in taking on and promoting the industrial structure and economic restructuring in the eastern region, and it still lacks economic strategic industries in terms of digesting excess capacity by virtue of the "New Silk Road". From now on, I

2. THE PROPOSED METHODOLOGY

2.1 The significance of promoting the transformation and upgrading of industrial structure and industrial chain in the western region under the background of carbon neutrality

Under the guidance of the "carbon neutral" energy conservation and emission reduction goal, the state will gradually reduce the direct consumption of coal such as raw coal, clean coal, bulk coal, coal water slurry, briquette, pulverized coal, etc., and reduce the proportion of coal in Primary energy consumption, to make transportation, electricity, and heating. However, the western regions that undertake industrial gradient transfer, like Dongguan, Wenzhou, and other places in the past, by participating in the value creation and distribution process of a certain industry, joining the global value chain division of labor in that industry. However, the western region still undertakes the transfer of some energy-efficient and labor-intensive industries, or outsourcing production of links with relatively low added value. This type of industrial transfer not only accelerates the integration of the western region into international division of labor, but also further utilizes the cheap labor and natural resources in the western region to create value for multinational corporations or foreign-funded enterprises. According to the Industrial organization, the level of industrial development can be described and measured from the two dimensions of resource allocation and technological progress.

Among them, industrial resource allocation refers to the allocation efficiency of social resource elements among the three industries within a certain range. The more reasonable the allocation of resources, the more significant the economic benefits will be the more unreasonable the allocation of resources, the significantly lower the economic benefits and hinder economic development. Meanwhile, with the increasingly prominent role of China's market mechanism in the allocation of resource factors, the transfer and flow of labor between the three industries is the most direct manifestation of the transfer and flow of social resource factors between industries. Scientifically positioning the driving force for industrial development, with a focus on leveraging the advantages of the service industry to drive its development.

The optimization of industrial structure under the New normal needs to position the driving force of industrial development as improving the quality of the population, improving the scientific and technological innovation ability of enterprises, coordinating the industrial layout and development ratio, and adjusting the input of economic factors. The positioning of the new industrial development impetus will help enterprises and even local governments broaden their industrial development ideas, improve the competitiveness and market adaptability of regional industries, the quality of industrial employees and the technological innovation ability of enterprises. Regard industrial structure adjustment as an important task for regional economic development, focus on developing service industries, scientifically and reasonably locate the sources of industrial development momentum, and thus form regional advantageous industrial types. The production and construction of traditional fossil and manufacturing industries often rely on thermal power generation as the largest source of carbon emissions, while the construction of other new energy power generation projects is slow and there is no unified electricity trading service market.

For some renewable energy generation projects such as hydropower, solar energy, wind energy, etc., it is difficult to allocate and trade various electricity resources through specific electricity markets, auxiliary service markets, capacity markets, and other channels due to the limited amount of electricity generated during a certain period, making it difficult to consume the existing stock of electricity energy. Therefore, by vigorously developing and deploying renewable energy such as hydropower, solar energy, and wind energy, and increasing the market share of new energy, it will drive the standardized construction of the renewable energy electricity market. Undertaking industrial gradient transfer is not the goal of the development of Western China, and the purpose of development is to achieve industrial upgrading through undertaking industrial gradient transfer.

2.2 Research on Strategies for the Transformation and Upgrading of China's Industrial Chain under the Background of Carbon Neutrality

In the process of economic globalization, a form of participation in international industrial division of labor through OEM not only makes China an important processing location in the global market, but also enables Chinese manufacturing enterprises to participate in the global value chain division of labor and value-added distribution. However, due to being at the low end of the global value chain, Chinese manufacturing enterprises are beginning to face competition bottlenecks, and there is a clear imbalance between the scale, quality, and efficiency of their products. This forces these enterprises, after experiencing a certain degree of growth, to propose the need to develop towards the high end of the value chain and seek industrial upgrading through industrial gradient transfer.

The core of improving resource allocation efficiency lies in reducing external diseconomies in industrial development. At present, the main functional area strategy has induced the government to lead the ecological compensation mechanism, while the division of responsibility between enterprises and the government is not sound enough, resulting in a lack of coordination between ecological protection and economic development. Therefore, it is necessary to further improve the efficiency of resource allocation, incorporate the external effects of industrial development into the process of resource allocation, and coordinate the relationship between the government and the market.

Improve the government's regulatory and regulatory capabilities, streamline administration, and delegate power, and return the original market power to the market; Better leverage the decisive role of the market in resource allocation, build a more scientific and legal market-oriented system, improve resource allocation efficiency, and promote orderly industrial structure adjustment. The proposal of dual carbon goals such as "carbon compliance" and "carbon neutrality" has driven the rapid development of clean energy industries such as wind power generation, photovoltaic power generation, hydropower generation, and nuclear power generation. For example, since the "the Belt and Road" initiative, China has reached cooperation with more than 100 countries along the line in the wind power, hydropower, photovoltaic and thermal energy industries, with an annual investment of about $2 billion in renewable energy projects.

In addition, in recent years, China's ecological environment departments have signed various agreements with other countries to jointly develop new energy technologies such as carbon capture, utilization and storage technology (CCUS), Hydrogen fuel cell technology, smart grid technology, and apply them to passenger cars, oil field flooding, food preservation and storage, synthetic biodegradable plastics, fire extinguishers and other fields. The western region should recognize that to maintain a competitive advantage, enterprises need to have advantages in certain specific strategic links of the value chain. In other words, the western region needs to pay attention to the true resource status of the organization, approach the strategic links of the value chain through industrial upgrading, and cultivate the ability to obtain high added value in the strategic links of the value chain.

3. CONCLUSION

The central and western regions should increase efforts to optimize the efficiency of industrial resource allocation and achieve industrial structure upgrading. At present, more emphasis should be placed on optimizing the efficiency of industrial resource allocation. Therefore, the central and western regions should focus on improving the allocation level of resource factors among industries. Gradually ban the traditional development mode that consumes high resources and seriously endangers the ecological environment, actively deploy and develop renewable energy businesses such as wind, solar, hydrogen and geothermal energy, strictly control the carbon emissions of high energy consuming industries every year and optimize the stock capacity, so as to drive the transformation of the fossil energy industry chain and the adjustment and innovation of the product manufacturing mode.

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Design of SSB Communication System based on Carrier Synchronization Extraction

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Abstract: A novel design and implementation method of all digital phase-locked loop (DPLL) for carrier synchronization of digital coherent demodulation in SSB Direct-sequence spread spectrum communication system is proposed. The full digital phase-locked loop Phase detector and numerical controlled oscillator are implemented in vector mode and rotation mode of the algorithm respectively, and an appropriate compromise is made between the number of iterations and the complexity of the algorithm. According to the characteristics of the proposed multi-step correlation algorithm, the distribution pattern of pilot frequency and data composition is optimized. The simulation results show that, taking a system where 6 users share 4 resource blocks as an example, the carrier synchronization scheme based on optimized frame structure can achieve higher estimation accuracy and better bit error performance with less pilot overhead compared to using classical frame structure.

Keywords: SSB communication, carrier synchronization, synchronization extraction

1. INTRODUCTION

In recent years, with the rapid development of new application scenarios such as the Internet of Things and machine communication, ground networks have shown certain limitations in terms of construction cost, maintenance cost, coverage range, etc. . Therefore, at the conference 3GPPRAN, solutions for non-terrestrial networks have been incorporated into the fifth generation (5G) mobile communication standard, aiming to compensate for the shortcomings of terrestrial networks in signal coverage, service quality, and other aspects .

Among them, as an important part of the non-ground network, LEO satellite communication has the advantages of low Transmission delay, low link loss, high system reliability, etc. , which can quickly achieve a wide range of coverage. Sync and go, which means fast data transfer between devices, such as downloading high-definition (HD) movies from a self-service station (kiosk) to a handheld terminal, or quickly exchanging photos between smartphones.

Communication speed is the primary consideration for this application, especially when it comes to transferring large files. The transmission distance of this application generally does not exceed 1 meter, so the channel mode is generally dominated by LOS. The main idea of NOMA technology is to provide services to multiple users on the same resource block, using complex detection algorithm design and interference cancellation technology at the receiving end to separate user information. Compared with orthogonal multiple access (OMA), the SCMA indicator matrix is shown in equation. The receiver uses the MPA algorithm for multiuser detection. Table 1 shows the frequency offset and phase offset sizes set on each resource block. The range of the ratio Eb/N0 of the average energy of each simulation bit to the Spectral density of the noise unilateral power can be roughly determined by using the error probability theoretical derivation and simulation results in reference and combining with the actual situation, which is set at 14-20dB.

NOMA technology can significantly improve resource utilization and system throughput and has a competitive advantage in communication scenarios with massive user access (such as satellite IoT). The existing NOMA schemes can be roughly divided into two categories: power domain-based NOMA technology and code domain-based NOMA technology. Among them, the former distinguishes different users through power allocation , but it is difficult to achieve in satellite communication with limited power. The latter uses specific structures or mappings to distinguish different users, and is less affected by power, making it more suitable for low orbit satellite communication.

Sparse code multiple access (SCMA) technology is a typical non orthogonal multiple access technology based on the code domain . By distinguishing different users through different sparse codebooks, it can achieve high overload rates while maintaining good performance, thus gaining widespread attention. In addition, its flexible codebook design provides rich optimization dimensions, making it more suitable for low orbit satellite communication systems. Although the complex multiuser detection algorithm still has certain limitations in the practical application of SCMA technology

2. THE PROPOSED METHODOLOGY

2.1 Design of Communication System Based on Carrier Synchronization Extraction

This article will study the related issues of SCMA technology in satellite communication systems. The most direct method for carrier synchronization is the insertion pilot method. From a time, domain perspective, it means sending one or more sine waves as pilot signals in addition to useful signals. From a frequency domain perspective, it means adding spectral lines at appropriate spectral positions, and the receiver uses a filter to extract this spectral line separately to obtain carrier frequency information, so this method is also known as external synchronization method. The system error rate curve after adding carrier frequency offset and performing carrier synchronization basically coincides with the system error rate curve without frequency offset, that is, the impact of carrier frequency offset on the simulation system is basically eliminated. After comprehensively referring to the schematic diagram of the impact of carrier frequency offset on the system error rate, a conclusion can be drawn, the carrier

synchronization algorithm described in this chapter can effectively correct the carrier frequency offset in both LOS and NLOS channels, and the algorithm design has achieved the expected results.

In low orbit satellite communication, a large Doppler frequency shift can cause frequency and phase shifts in the received signal, leading to a sharp decline in receiver performance. Currently, a carrier synchronization module is required to capture and track the two. In the carrier synchronization module, a stepwise correlation frequency offset estimation algorithm and a maximum likelihood phase offset estimation algorithm are designed using the unmodulated pilot signal.

This chapter first provides an overview of traditional carrier synchronization algorithms, detailing the Costas loop carrier synchronization algorithm and the data-assisted carrier synchronization algorithm. Then, the data-assisted carrier synchronization algorithm leads to the carrier synchronization algorithm based on gray sequence correlation operation, and the two-step carrier synchronization process is detailed in conjunction with the frame structure, Finally, simulation testing was conducted, and the conclusion was drawn that the algorithm meets the project design requirements. Finally, this chapter introduces the low hardware complexity processing details of the synchronization algorithm. When pilot overhead η＜ At 20%, the carrier synchronization scheme, especially the frequency offset estimation algorithm, has a significant estimation error, which leads to serious degradation of system performance. When pilot overhead η＝ At 20%, the overall estimation accuracy of the carrier synchronization scheme is relatively high, thus achieving a near ideal situation. The BER performance of flTs=0, with BER=10-4 as an example, corresponds to a performance loss of approximately 0.3dB.

LOS channel, signal-to-noise ratio 8dB). Note that the sampling deviation in the table is not the sampling frequency deviation, but the sampling point position deviation. From the diagonal data, when the sampling bias of the preamble and subsequent data blocks of the frame is consistent, the fractional equalizer of this system can effectively correct the impact of sampling timing deviation. The system error rate is basically maintained at 45, but there are significant fluctuations in the error rate in other positions in the table, corresponding to changes in the actual sampling bias. At this time, the equalizer fails to correct the impact caused by sampling timing deviation.

2.2 Application of Carrier Synchronization in SSB Communication System

There is no need to adjust the ADC sampling clock, which avoids the problem of unsatisfactory correction of sampling timing deviation caused by clock adjustment lag in high-speed communication systems. The digital timing synchronization system performs ADC sampling at a fixed local sampling frequency and phase, with a sampling rate typically several times the symbol rate. This allows for the recovery of an optimal sampling point using multiple sample points. Considering the characteristics of the baseband gigabit processing rate of this project, the traditional feedback adjustment method for ADC sampling clock is no longer applicable. Therefore, this article mainly analyzes the digital timing synchronization method.

To demonstrate the advantages of optimizing frame structure, pilot overhead is provided η＝ 15% and η＝ At 20%, the BER performance of carrier synchronization schemes based on optimized structure-1 and optimized structure-2 is compared with corresponding classical frame structures. Under the same pilot cost, compared with carrier synchronization schemes using classical frame structures, carrier synchronization schemes using optimized structure 1 and optimized structure 2 have achieved significant performance gains. Taking BER=10-14 as an example, the performance gains brought by these two optimized structures are greater than 2.5dB and greater than 2dB, respectively. This algorithm, like the Gardner algorithm, only requires twice the symbol rate sampling, but unlike the gardner algorithm, which directly uses the received data for bias estimation, it fully utilizes the excellent correlation characteristics of the gray sequence. The received data is first cross correlated with the local gray sequence, and then the sampling timing deviation is estimated based on the correlation peak.

This algorithm greatly reduces the interference of noise on estimated values and improves estimation accuracy. Considering the complexity of FPGA implementation in the project, this article proposes specific hardware implementation methods such as combining error estimation with ROM lookup tables. Since only the first pilot block is used for the coarse estimation of the first step frequency offset, the length of the first pilot block can be increased to improve the estimation accuracy of the first step frequency offset estimation algorithm while the pilot cost remains unchanged. The optimized frame structure obtained from Scheme 1 is referred to as optimization structure -1 in the following text. Compared with non-Polynomial interpolation filters with high implementation complexity, polynomial interpolation filters with simple structure can also achieve excellent performance. Reference analyzes the performance of several commonly used interpolation filters in sampling timing synchronization in detail and points out that linear interpolation filters have excellent performance, simple structure, and can be applied to most occasions. Considering the actual situation of the project, this paper uses Linear interpolation filter to correct sampling timing deviation.

3. CONCLUSION

This paper proposes an effective carrier synchronization scheme for low orbit satellite communication systems based on SCMA technology to address the problem of large Doppler frequency shift. Firstly, coarse estimation of frequency offset is used to capture and compensate for large Doppler frequency shift; Then, the remaining frequency offset is re captured and fine compensated using fine estimation of frequency offset; Finally, the maximum likelihood algorithm is used to estimate the residual frequency offset and phase offset Based on existing sampling timing synchronization algorithms, a sampling timing synchronization algorithm suitable for SSB single carrier frame structure was studied. The traditional SSB sampling timing synchronization algorithm was combined with the specific situation of this project, and the sampling timing synchronization algorithm based on gray sequence cross correlation operation was analyzed. Simulation verification was conducted, and the feasible conclusion of the algorithm was drawn. Finally, the algorithm was applied to the hardware implementation of the project and FPGA design verification was carried out, successfully resolved the impact of sampling timing deviation on the baseband receiver of the project.

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The Integration of Vocal Techniques and Piano Accompaniment in Children's Choir Song Performance under the Background of Information Technology

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Abstract: Vocal singing and piano accompaniment belong to two different forms of artistic expression, each with its own unique charm. However, in the process of vocal singing, by integrating them with piano accompaniment, the two can be in a harmonious state, bringing a more wonderful audio-visual experience to the audience, and achieving many classic music works. The training of children's chorus is the foundation of singing teaching, and it is also an important means to cultivate children's mastery of singing skills and form good vocal literacy. This article elaborates on the issue of harmony and accuracy in children's vocal choir, the characteristics of children's vocal sounds, and several issues that should be paid attention to in training vocal skills.

Keywords: Vocal Techniques, Piano Accompaniment, Children's Choir, Information Technology

1. INTRODUCTION

At one stage, people's understanding of the relationship between vocal singing and piano accompaniment was relatively one-sided and superficial. Most believed that vocal singing played a dominant role in the stage performance process, while piano accompaniment played an auxiliary role, only seeing the importance of vocal singing and neglecting the importance of piano accompaniment. In fact, vocal music singing, and piano accompaniment complement each other. Vocal music singing cannot be separated from the support of piano accompaniment. Piano accompaniment can help vocal music singers to push the interpretation of music works into a new realm. While conveying art and beauty, it also plays the role of emotional transmission, so that the audience can have a deeper understanding of vocal music works. The audience is influenced by internal emotions, and the level of music perception is richer.

A small number of works will be created with a specific rhythmic type or music fragment of the work, or change, vary and develop based on the Steps and skips of the chorus subject. For example, in Mountain in the Void, the piano prelude is a five bar phrase, which uses the first main Steps and skips of the soprano part to change and repeat, emphasizing the main melody of the work; For example, in sections 44 to 68 of "Ibrahimovic", before each vocal part sings its own phrase, there is a short piano solo phrase as a transitional link between the various vocal parts. Each phrase adopts a tone consistent with the subsequent chorus parts, making the work naturally connected and each musical form more distinct. The training of children's vocal choir is not only the foundation of singing teaching, but also the main means of cultivating children's mastery of singing skills and forming good vocal literacy.

In the training of choir, the first step is to strengthen the basic training of singing, with the accuracy of choir and voice being the most important issue. In choral works, each chord does not exist as an isolated longitudinal sound, but rather interweaves and forms a whole. Therefore, the handling of harmony in choral performance cannot be separated from the movement and tendency of harmony. When we talk about harmony, we refer to the relative accuracy of each chord (each harmony part) in harmony movement. Choral performance, as a special artistic performance mode, it has gone through more than 200 years of history, and in this continuous process, the choir mode has also undergone continuous development and innovation.

From the earliest choral system with religion as the theme and lack of accompaniment form to the later choral system with secular as the theme and then integrated into the accompaniment, in style, it gradually transited from the original classicism to the later romanticism, choral performance also needs continuous innovation and development with the development of the times, and piano accompaniment also gradually popularizes with the development of choral. In terms of the integration of piano accompaniment and artistic processing, we need to pay more attention to the creative techniques of choir. To try to breathe together with vocal performers and sing with them in their hearts, it is necessary for vocal performers and piano accompanists to have a deep and specific understanding of the artistic style, emotional expression, specific melody composition, speed control, and other aspects of the music performed. On this basis, it is also necessary to have a consistent understanding of the artistic and emotional core of the music work, only in this way can we truly achieve a full combination of vocal singing and piano accompaniment. Piano accompaniment in the form of harmony.

2. THE PROPOSED METHODOLOGY

2.1 The intonation processing of chords with different structural types

This type of piano accompaniment is presented in the form of harmony, which can be roughly divided into columnar harmony, decomposed harmony, semi decomposed harmony, rhythmic harmony, and patterned harmony. The form of columnar harmony accompaniment is simple and symmetrical in rhythm, rich in sound, and distinct in layers. In the accompaniment, it mainly serves as a foil and support for the human vocal part, and the piano accompaniment of the entire work is mainly columnar chords. Decomposed harmony accompaniment refers to the appearance of chords in the form of arpeggios, such as "Snowflakes"; Rhythmic harmonic

accompaniment refers to the type of accompaniment that uses a specific rhythm type to play chords or break chords. The most common rhythm types in choral piano accompaniment are Polka rhythm and Waltz rhythm. From small chorus groups to chorus groups, to the current whole theater chorus and art performance type chorus, the development of chorus is gratifying and creative. The interpretation of sound in choir is not only about language meaning, but also about unique artistic needs.

Each choir performer in a choir expresses music and emotions through vocalization; Choral scenes and environments also require music to fill emotions and thoughts. After piano accompaniment enters the choir, the choir performer will cooperate well with it, such as the choir conductor. Although piano accompaniment is a performance component that intersperses in the choir art performance, it is also controlled by the conductor. Therefore, even if piano accompaniment is improvised and not continuous, it is also necessary to cooperate with the conductor, achieving a harmonious and unified musical effect with choir art performance. After grasping the characteristics of children's voices, it is easier to train children's vocal choir.

Then, during the training process, it is necessary to grasp the psychological characteristics of the child. Chorus can provide children with a rich audio world. Especially emotional singing can provide children with emotional satisfaction, Experience beauty (the beauty of timbre, harmony, polyphony, etc., thus forming a good Musicality and noble artistic sentiment. At the same time, based on the above two aspects, attention should also be paid to the training of singing skills in children's chorus. On this point, first, teachers must understand the physical state and function of children's voice generators. From the relationship between chorus and piano in voice creation, it can usually be divided into two categories: late creation and synchronous creation In terms of the category of synchronous creation, it mainly refers to the effective integration of the chorus works and the acoustic characteristics of the piano through the Musical composition in the chorus, thus showing different creative characteristics; For works created in the later stage, intonation is a key factor affecting the level of vocal performance.

For vocal performers, even if their own vocal performance level is high, they are often affected by various factors such as emotional state and surrounding environment during the live singing process, resulting in pitch problems, which directly affect the singer's perfect performance of the work. The integration of piano accompaniment can effectively alleviate this problem. Due to the effective regulation of pitch by piano accompaniment, singers can avoid a series of issues such as low pitch control during the singing process, thereby ensuring a smooth performance of live vocal music.

2.2 The Application and Expression of Piano Accompaniment and Children's Choir Performance in Works

Piano accompaniment needs to be performed based on piano solo. As an accompanist, before systematically learning piano accompaniment, one must possess qualified piano solo skills, a solid foundation in piano performance, good artistic expression, and the ability to quickly recognize scores, improvise, and understand art. Unlike piano solo, choral piano accompanists need to listen to the choir's performance, correctly judge the tone and volume, and respond to unexpected situations in the process of completing accompaniment tasks. This requires accompanists to systematically learn music theory knowledge such as work analysis, form analysis, vocal music, music history, etc. In the process of learning and practice, they need to improve their performance skills, artistic perception, and music understanding abilities, to collaborate perfectly with choirs.

Piano improvisation accompaniment is a common way of piano accompaniment in choir art performances. When using piano accompaniment, the performer needs to rehearse each stage and step of the choir repeatedly based on the music theme of the choir music work. Even so, in a real choir performance environment, singing will still be influenced by the environment, music performance effects, audience reactions, and other factors, resulting in differences from the expected performance results. At this point, piano impromptu accompaniment becomes the bond between the choir performance and the audience. After the piano impromptu accompaniment is played, the musical elements in the choir music receive a "blessing" effect. The music effect of piano music, which is sometimes rich and sometimes crisp, can give the audience a refreshing feeling. The training of combining true and false sounds in the high-pitched area is generally divided into two steps. First, when there is a temporary feeling of emptiness and lack of intensity, appropriately expand the range upwards.

After some consolidation, proceed to the second step, which is to strive to enrich the falsetto components in the full and high vocal area. There are three methods: firstly, the breath should not float upwards, and when inhaling, the shoulders should not be shrugged. Moderately increase the breath pressure. The second is to appropriately expand the oral volume and use as much resonance as possible in the upper part of the pharyngeal cavity (oral cavity, nasal cavity, cephalic cavity, frontal sinus, and sphenoid sinus). The third is to use sensations such as "raising eyebrows, slightly lifting cheeks" and "smiling and yawning like mouth movements" to help choir members achieve a high position in their voices. Whether in terms of style, internal structure, thematic presentation, and form, they will showcase an extremely unique aspect.

For the accompaniment system that serves the choir sound system, it needs to be accompanied by different changes and developments in choir performance, to demonstrate more outstanding artistic effects. This performance can further make the piano accompaniment in choir more distinctive, and it will also continuously extend and expand its functionality. Inspire children to sing more with their head vocals or use mixed vocals with dominant head resonance. Because when children make their head sounds, they mainly use the smaller volume resonance vibration in the upper part of the pharyngeal cavity. The vibration state of the vocal cords is edge vibration or partial vibration, with a lighter load, which is more suitable for delicate children's vocal organs.

3. CONCLUSION

Vocal singing and piano accompaniment have their own characteristics, and the integration of the two can enrich the level of interpretation of children's choir works. In fact, vocal singing and piano accompaniment cannot be biased towards each other. The two are inseparable and together form the vocal performance system. Therefore, in the practice and research process of vocal performance, it is necessary to effectively coordinate the relationship between vocal performance and piano accompaniment. As a piano accompanist, one should understand the artistic characteristics of choral art and piano accompaniment, improve piano

performance ability and artistic appreciation ability, thereby enhancing the collaborative ability with choral performance, fully demonstrating the artistic connotation of choral works and the artistic charm of choral performance.

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Research and Practical Exploration of English Translation from the Perspective of Cross-Cultural Communication

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Abstract: In cross-cultural communication, English is an indispensable language for communication. News media is an important means of understanding current affairs in other countries, and the accuracy of news English translation is particularly important. English is also a tool and bridge for communication between both parties, three parties, and multiple parties. This paper first briefly analyzes the translation characteristics of news English. The cultural commonness and cultural individuality, Cultural conflict, and cultural exchange existing in Chinese culture and western culture have an important impact on translation activities. Therefore, in the process of translating from English to Chinese, translators need to pay attention to cultural factors and differences between Chinese and Western cultures and adopt corresponding translation strategies to accurately convey the meaning of the original text.

Keywords: practical exploration, English translation, cross-cultural communication

1. INTRODUCTION

The development of internationalization has led to our products going abroad and foreign products entering our country. When reporting foreign news, it is necessary to not only adhere to the principles of national etiquette in English translation, but also to translate and understand what the other person is saying in the content of communication between Chinese and foreigners.

Cross cultural communication mainly refers to the cultural communication between people from different cultural backgrounds. English, as a means of communication and a trend in modern culture, plays a very important role in international communication. From a cross-cultural perspective, English translation should also be consistent with cultural exchange, and more attention should be paid to the conciseness and clarity of language to make the translated language more fluent, find common ground between English and Chinese, and seek common ground while reserving differences, so that news reports can clearly convey accurate foreign news to the Chinese people. In international business and trade, to reach a consensus on cooperation, it is usually necessary to sign an international business contract, and the text content of the business contract is mostly presented in English. The International Trade Organization has very strict requirements for trade contracts, and both the content and format must be standardized and rigorous.

Both parties signing the contract must fill in the form according to specific requirements to ensure the formality of the contract. For example, in business contracts, the word 'hereby' often appears, which is translated as' therefore, hereby 'in Chinese. However, in ordinary English to Chinese translations, this formal and commercial word is rarely used, and is usually replaced by the commonly used phrase' by reason of this'. Professional Business English translators should translate accurately and normatively in accordance with business idioms. At the same time, from the perspective of cross-cultural communication, to adapt to the development of economic and cultural globalization, English translation majors also shoulder the mission of cultural communication. They need to have a deep understanding of the historical, cultural, and socio-economic knowledge of western countries, as well as a deep understanding and summarization of local culture, and a clear understanding of the language and cultural differences in English.

Therefore, translation talents should not only possess solid professional knowledge, sufficient language knowledge, and proficient translation skills, but also bear the responsibility of transmitting local culture in a way that meets cultural needs and communication norms. Only from this point of view can we cultivate the professional translators needed in the context of economic cultural globalization. The different living environments, social customs, values, and religious beliefs of different ethnic groups have led to different social development trajectories, resulting in different understandings of the objective world. Therefore, sometimes the two cultures of China and the West inevitably collide and conflict. On the linguistic level, reflection is that English and Chinese each rely on each other to describe and express the same thing, generating different associations, even the phenomenon of completely corresponding referents but vastly different pragmatic meanings may occur, which brings various difficulties to language translation.

2. THE PROPOSED METHODOLOGY

2.1 The significance of cultivating English translation practical ability from the perspective of cross-cultural communication

Translators need to be particularly cautious in the translation process. If literal translation is based on the understanding of their own culture, it may result in errors where the meaning of the translation is not relevant or even completely contradictory to the original text. Therefore, currently, domestication is often adopted as a translation strategy. The requirements of commercial contracts are very strict, and there are also some strict rules for specific details to ensure the accuracy, standardization, and accuracy of commercial contracts. After the contract is signed, disputes between both parties in the transaction are avoided. So, this kind of contract

is strict. In the process of translation, the translator must have a clear understanding of the contract format. Under the condition of full understanding and mastery, we should also express it more strictly. For example, ensure that in Business English, strict and reliable translation usually has some fixed collocation.

As an agreement and the terms and conditions of the agreement. European Community countries, European Community country agreements, this translation is relatively standard in the process of signing agreements, and it is widely used internationally and has a certain degree of universality. Due to the different historical backgrounds of development in various countries around the world, there are significant differences in customs and traditional cultures among different countries and regions. The formation of customs and habits is accumulated through a long history and is a characteristic and symbol of national culture. In international trade, it is important to pay attention to understanding and tolerance of cultural differences. In China, the classic traditional festivals include Spring Festival, Dragon Boat Festival, etc., while in Western countries, Thanksgiving, Christmas, and Easter are the main festivals. Due to the different religious beliefs of Religions by country, people may not have a deep understanding of Easter, a festival based on religious stories. Translation is a highly practical and applied discipline that requires rich language knowledge accumulation, proficient translation skills, as well as profound cross-cultural and bilingual abilities.

However, the current focus on the cultivation of English translation ability, while emphasizing the improvement of English proficiency and translation skills, has downplayed the cultivation of students' bilingual cultural abilities in both Chinese and Western languages, and neglected the improvement of students' cross-cultural communication abilities. Different customs affect news English translation, and they vary depending on the calendar history, culture, and development of different countries and regions. Customs and customs play a very important representative role in a region and are also a valuable cultural asset. News English translators must understand the customs, cultures, and customs of different regions. We should fully respect and acknowledge various local customs and traditions. The customs and habits of certain special regions are highly valued by indigenous residents. In different cultures, people will make different value judgment on the same objective thing or phenomenon. Under the influence of cultural psychology, this value judgment may change from quantitative change to qualitative change to form a social norm, which will restrict the behavior of social personnel.

2.2 Training Path for Practical English Translation Ability

For example, in ancient China, "dragon" was always regarded as a sacred creature, a symbol of auspiciousness, power, and dignity. However, in Western culture, the opposite is true in China. Dragon is synonymous with evil and evil, and different cultural backgrounds lead to different psychological states. There are also significant differences in understanding and judgment of the same thing. Some local universities lack in-depth cooperation between schools and enterprises. Due to limited social resources, the demand for translation talents in small and medium-sized enterprises is not large, making it difficult to meet the needs of university cooperation. This has led to some translation students having difficulty penetrating the enterprise and experiencing the real translation practice environment.

Failure to effectively align with the market, inability to allow students to experience practical and career oriented "immersion" extracurricular practical teaching, and neglect the combination with social practical needs, resulting in students feeling difficult to engage in translation related work after graduation. There are differences in the translation of sentence structures: throughout the long history, the differences between Chinese and Western cultures have existed for a long time. Chinese culture places more emphasis on image thinking and emphasizes abstract thinking than Western culture, which seriously affects the translation of news English. During the translation process, the accuracy of translation will decrease. Firstly, from the perspective of sentence structure analysis, western English places more emphasis on logic and the logic in sentence structures, People rarely appear in a sentence, but they often use one sentence to describe the entire objective fact. Chinese sentence structures place more emphasis on meaning, using simple words to express important information, which is also the reason for the issue of deviation in news English translation.

Because of the characteristics of business English translation, its use needs to be highly professional and normative, requiring translators to master the expression characteristics of translation in business activities, and be able to flexibly use translation skills in different trade. In addition, seemingly ordinary words will have different meanings in the business environment. For example, the word "claim" should be translated as "claim" in the normal translation and should be translated as "claim" in the business English translation. In business English translation, attention should be paid to the difference from ordinary translation. Ordinary translation requires the overall harmony of sentences, and attention should be paid to the atmosphere and tone of the article. business English pays more attention to objective facts and avoids the translation of sentences without personal decoration. Ordinary passive sentences and long difficult sentences are used more frequently.

Keep learning business English translation related knowledge, conduct comprehensive analysis and research on sentence patterns and styles of translation, and select appropriate expression characteristics according to different occasions. From the perspective of cross-cultural communication, the cultivation of English translation practical ability needs to further enrich the curriculum system, based on the essence of the English subject, innovate teaching methods, and means, and build a new student-centered classroom. Specifically, the innovation of teaching methods should focus on the transformation from "teaching" to "teaching and learning", and the transformation from teacher centered to student centered. Modern teaching concepts and models should be reasonably utilized, and new methods should be actively explored. By integrating case-based teaching, discussion based teaching, and blended teaching methods, an efficient and free modern intelligent classroom should be constructed.

3. CONCLUSION

In today's internationalization process, news English is one of the ways to keep up with the times and understand the world. Understanding world news has also become an indispensable part of our contemporary learning. This is also why news English translators need to continuously improve their translation skills, understand cultural differences between China and the West, and integrate cultural differences into the translation process. Therefore, Business English translation must start from a cross-cultural perspective, cultivate translators' cross-cultural awareness, master the cultural

differences between home and foreign countries, and accurately express the central meaning of the trade subject according to different cultural backgrounds, considering the various differences in regional language expression, cultural cognition and thinking modes. The development of Business English translation from the perspective of cross-cultural communication is conducive to the better adaptation of translation work to the development of the times.

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A Study on the Path of Integrating Ideological and Political Elements into College English Teaching

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Abstract: Curriculum ideological and political education is a new requirement put forward by the country for education and teaching, and implementing curriculum ideological and political education has become one of the important tasks of university education. Facing the new requirements of ideological and political education in the curriculum, college English teachers are facing new opportunities and challenges. The paper analyzes the current situation of college English curriculum teaching and elaborates on the necessity of integrating ideological and political elements into college English curriculum. How to effectively integrate ideological and political elements into college English teaching and cultivate comprehensive talents with comprehensive moral, intellectual, and physical development is of profound significance. The article attempts to explore the path and feasibility of ideological and political integration in college English classroom teaching from the perspectives of "quantity", "quality", and "teacher ideological and political considerations".

Keywords: Ideological and Political Elements, College English Teaching, Integrating path

1. INTRODUCTION

In 2017, the college english teaching guide issued by the ministry of education clearly stated that core socialist values should be organically integrated into college English teaching.

So, how to organically integrate ideological and political education with college English teaching is a question worth pondering for every college English teacher. Ideological and political education in colleges and universities is an effective way to cultivate and carry forward core socialist values and help college students establish correct world outlook, outlook on life and values. It is also an important part of China's higher education. Teachers integrate theoretical knowledge and conceptual connotations of ideological and political education into their teaching through purposeful, planned, and organized teaching activities, guiding students to establish correct ideological and political concepts and moral behavior norms.

The integration of ideological and political elements into professional courses is an effective way to improve teaching quality and strengthen students' ideological and political education. While conducting professional subject knowledge teaching activities, it subtly and correctly guides students' ideological and political concepts, which helps students to have a deeper understanding of the core connotation of ideological and political education. At present, the proportion of British and American cultural materials in "College English" textbooks is relatively large, while the proportion of materials related to Chinese culture is relatively small. The author believes that one of the two articles in each unit can be used to tell a good "Chinese story", involving Tang poetry, Song poetry, qin, chess, calligraphy and painting, scenic spots, and historical sites, etc.

For example, if one of the articles involves British and American culture, covering various aspects such as politics, economy, technology, culture, education, ethics, religion, morality, etc., then the other article can be selected with themes like or related to Chinese cultural content. In this way, the theme of the article runs through both China and foreign countries, and cultural translation not only broadens the field of vision, but also introduces "ideological and political elements" into "college English", cultivating the "cultural confidence" of college students. By comparing and comparing, we aim to enhance students' sense of national responsibility and pride, and truly cultivate and deliver comprehensive applied talents and reserve forces for the country. The English textbooks in universities usually use national planning textbooks, which reflect the development of society and have a clear sense of modernity and practicality.

Therefore, as a college English teacher in the new era, it is necessary to fully explore the rich humanistic connotations of college English courses, be good at discovering the entry points of ideological and political education in textbooks, deeply explore the ideological and political elements in textbooks, and conduct heuristic teaching from the perspective of ideological and political education on the basis of the textbooks used, integrating and comparing Chinese and Western ideas and cultural knowledge, enhancing students' understanding and awareness of cultural similarities and differences, and expanding their horizons, The key to the smooth integration of ideological and political elements into college English teaching lies with teachers. Firstly, college English teachers should not only possess high professional abilities and qualities, but also possess ideals, beliefs, and noble moral sentiments. They should set an example by example, teach by example, strictly demand themselves, continuously strengthen personal cultivation, pay attention to their words and actions, never forget to spread positive energy to students, and always be a guide in students' thinking.

2. THE PROPOSED METHODOLOGY

2.1 The necessity of integrating ideological and political elements into college English courses

College English teachers should bear in mind their mission of teaching and educating people, strengthen their ideological and political awareness, and enhance their comprehensive

literacy through channels such as independent learning, collective learning, training, and research. They should enrich their ideological and political knowledge and traditional Chinese cultural knowledge, understand the latest political news, dialectically view Western culture, and consciously and systematically integrate ideological and political elements into their teaching, so as to truly improve one's own ability in ideological and political education. The practical section includes the application of collaborative innovation theory in college English, the basis and specific courses for the curriculum design of applied college English, the use of SWOT to analyze the development of college English teachers, and the investigation and analysis of the current situation of college English learning; The reference part mainly draws on the characteristics of English teaching in the University of Hertfordshire preparatory course and the characteristics of in-service education and professional development of foreign language teachers in the European Union, as well as the relevant enlightenment.

In addition, the book also takes Zhejiang University of Science and Technology as an example to study and analyze the basic content, development problems and countermeasures of college English curriculum construction in detail, which provides important reference value for college English teaching research and practice. The integration of ideological and political elements into the "College English" curriculum not only ensures quantity, but also ensures quality. Teaching according to individual needs and aptitude are undoubtedly two powerful tools to ensure the effective integration of ideological and political elements into the teaching process of college English. Teaching according to individual needs and aptitude are two important teaching methods and principles in teaching. In teaching, teachers choose learning methods that are suitable for each student's characteristics based on their cognitive level, learning ability, and personal qualities. They utilize the students' strengths, make up for their shortcomings, stimulate their interest in learning, establish their confidence in learning, and promote their comprehensive development.

In addition to delving deeper into the ideological and political elements in textbooks, teachers can use instructional design to help students shape the three perspectives in the process of analyzing and solving problems, and consciously practice correct values in the context. Teachers must pay attention to classroom teaching design and appropriately incorporate ideological and political elements according to the teaching theme. The most common teaching theme is based on units, and the specific teaching process can start with discourse, vocabulary, and exercises. The differences between Chinese and Western cultures, values, ways of thinking and customs involved in the text can all be the entry point of ideological and political thinking. Compare and interpret them with China's excellent traditional culture and Core Socialist Values to guide students to think and improve their cultural self-confidence. CET-4 and CET-6 are national teaching examinations hosted by the department of Higher Education of the Ministry of Education of the People's Republic of China, the ability to pass the National College English Proficiency Test has a significant impact on students' degrees and employment.

2.2 The "Ideological and Political Consideration" of "Teachers" in the Integration Path of Ideological and Political Elements

In recent years, the National College English Test Band 4 and Band 6 Committee has made partial adjustments to the exam format. After the reform, the translation section of the Band 4 exam focuses on examining traditional Chinese cultural content and has added a short news listening format. However, these two parts of the examination have a direct relationship with ideological and political elements. Integrating ideological and political elements into college English curriculum teaching is of great significance. English is an important language tool for communication and exchange. Many teachers in the teaching process of college English courses often only focus on imparting basic English knowledge and skills, while neglecting the important educational concept of cultivating morality and cultivating talents.

Integrating ideological and political elements into college English curriculum teaching not only allows teachers to have a deeper understanding of the importance of education, but also helps to improve the effectiveness of English teaching. The firm ideological beliefs of teachers are a force that can stimulate students' self-reflection and self-regulation. At the same time, teachers are also the pioneers and leaders of "cultivating morality and cultivating talents", and their behavior runs through the entire curriculum teaching process. Teachers should clarify the training objectives and requirements of "college English", fulfill their responsibilities as teachers, and not be limited to being classroom educators, but should lean towards the roles of organizers and guides. In the classroom, teachers should demonstrate their own noble professional ethics, "being upright as a model and learning from others as a teacher". Under the influence of listening and watching, students can also greatly improve their humanistic literacy and moral character.

College students in the new era are quick in thinking, flexible in mind, broad in vision, and have a strong sense and ability to accept new things. Therefore, teachers should keep pace with the times, constantly pay attention to social current affairs news, and properly introduce relevant ideological and political elements such as current political hot spots close to life into teaching in combination with students' own needs and characteristics, to help students understand the world development pattern, feel the speed of Chinese century's rise, and enhance students' national pride. In the first lesson of school, teachers should seize this opportunity to introduce the development of their major and future employment prospects to students, and gradually deepen ideological and political education through the content that students are interested in.

Similarly, when providing guidance on translation question types to students, teachers can not only impart translation skills, but also provide students with relevant expansion or infiltration of traditional Chinese cultural knowledge based on the translation content related to traditional Chinese culture that appears in past real and simulated questions. Such translation topics are mostly close to our real life, such as Chinese knotting, tea culture, Chinese food, etc., which are easy to arouse students' interest and resonance. Some English teachers lack a clear and clear understanding of the integration of ideological and political elements into English curriculum teaching.

They believe that the correlation between professional subject education and ideological and political education is not strong, and they only need to focus on teaching English knowledge and skills to help students improve their English language abilities, while ideological and political education should be entrusted to specialized ideological and political teachers. Although many English teachers have rich professional knowledge and outstanding teaching abilities, they lack a deep understanding of the connotation of ideological and political education, making it difficult to closely integrate ideological and political elements with college English teaching content.

3. CONCLUSION

The organic integration of ideological and political elements with college English is imperative, which can fundamentally improve the current situation of the lack of mother tongue culture in college English classrooms. This not only improves students' language application ability, but also cultivates their good qualities, improves their ideological and political literacy, and achieves the fundamental goal of "cultivating morality and cultivating talents" in education. To improve students' cross-cultural communication skills, help them establish correct worldviews, outlooks on life, and values, enable them to have a correct understanding of the cultural differences between China and the West, enhance their cultural confidence, enhance their sense of national pride, and cultivate new era college students with an international perspective, good language skills, and moral integrity for the country.

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Construction of an Intelligent System for Computer Interactive Electric Piano Training Based on a High-Resolution Camera Positioning Algorithm

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Abstract:Design and implement a high-resolution iris image acquisition hardware system using 10-megapixel high-resolution CMOS digital camera MT9J003 and USB3.0 bus interface. Through the Cyclone III series high-performance FPGA, the collected high-resolution iris image is displayed on the liquid crystal in real time, and different calibration methods are analyzed and studied. Internal and external parameters of the camera. A music teaching form composed of a music-assisted teaching system and music production software. It integrates viewing, listening, and practicing, changing the traditional one-to-one teaching mode. Its core composition adopts professional audio processing chip and processor to realize controllable digital audio communication channel, which solves the problem of interference well.

Keywords: Intelligent System, Computer Interactive, Electric Piano Training, High-Resolution Camera Positioning

1. INTRODUCTION

With the continuous improvement of people's living standards, piano teaching has become an important part of music teaching. It can not only enhance students' personality development [1], but also cultivate their sentiments, improve their musical aesthetic ability and their own comprehensive quality. The electric piano is the main teaching equipment of the piano group class. Its variety of timbres, rhythms, convenient and fast use methods and face-to-face communication with students make it an indispensable teaching method for piano group class teaching. Digital piano group class [2].

In a sense, the appearance of this new course has played a great role in promoting the cause of piano education in our country and improving the current situation of piano teaching in our country, which is "the number of piano learners is increasing rapidly and the professional teachers are lacking in Yan Lei" [3]. No matter how hard or hard, flicking or replaying, the sound volume is the same. When playing, the sound is not strong or weak. Although the electronic piano using MF modulation simulation technology has initially solved the problem of dynamic force, there are strong and weak sounds, but the level of strength and weakness is far less rich than that of mechanical pianos [4].

When I first came into contact with the digital piano, I felt that the touch feeling and sound effects of the traditional piano could not be found on the digital piano, and I always felt that the practice of the digital piano could not replace the practice of the traditional piano [5]. With the passage of time, the understanding has changed. The "New Generation Artificial Intelligence Development Plan" issued in 2017 further clarified the strategic goals of artificial intelligence development in various industries [6]. The construction of smart power plants has become an important part of the intelligent transformation of power generation enterprises. With the continuous development of big data and other technologies, the construction and management of computer experimental teaching centers in colleges and universities must be constantly reformed and innovated [7].

The traditional multi-camera human positioning idea comes from the three-dimensional reconstruction of objects. Although high-precision target positioning can be obtained, this method needs to calibrate many parameters [8], resulting in poor real-time performance of the algorithm. Therefore, human localization based on homography has been rapidly developed [9]. However, with the rapid development of network and communication technology and the continuous expansion of human physical and virtual activity space, how to quickly and accurately identify a person's identity to protect the security of personal property information has become an inevitable society. Question [10].

The positioning purpose is achieved by extracting the image positioning points captured by the visual sensing equipment, and then restoring the three-dimensional information of the positioning points through a series of spatial coordinate transformations [11]. Surveillance cameras that can be seen everywhere in industrial production and security monitoring provide suitable conditions for indoor visual positioning. Ideally, this kind of passive visual positioning can obtain high positioning accuracy, but in complex scenes, the accuracy of this positioning method will be poor. It is widely used in the scene of environment perception [12].

The multi-threaded radar realizes the ranging function by sending pulsed lasers, using the time difference between transmitting and receiving lasers and the speed of light. According to the working principle of multi-threaded lidar researched by Yang Haowei [13] and other scholars, for example, for some industrial measurement, biomedical image processing, unmanned driving and obstacle avoidance technology [14], etc., binocular vision technology is widely used. It can help human beings to complete some tasks that are impossible for human beings to accomplish more accurately and in real time when human eyes cannot accurately judge. Since 2009, the General Academy of the Royal Academy of Music has allowed the use of digital pianos to assess all piano grades [15].

In the United States, the Bethel Conservatory of Music in Kansas, the Eastman Conservatory of Music in Rochester,

New York, Indiana University, and the University of Michigan have all offered group piano lessons. Traditional electric piano teaching mainly adopts one-to-one teaching or small class teaching mode [16], which cannot achieve large class teaching. If an independent piano room is built in order to eliminate interference, the investment cost is too high, and the teaching intensity of teachers is increased. It is difficult for schools to promote quality education in this area on a large scale. It is bound to bring some difficulties to teaching. The original one-to-one teaching mode and the teaching method of oral teaching have been greatly impacted. The reform of piano lessons is imperative [17].

2. THE PROPOSED METHODOLOGY

2.1 The High-Resolution Camera Positioning Algorithm

In this paper, the method of combining Adaboost and circumferential radial symmetry is used to determine whether the image contains a qualified iris area, and at the same time, the iris area is roughly positioned. The fine positioning of the iris adopts the method of circular difference proposed by Daugman. The chapter introduces the principle of the typical occlusion localization algorithm binocular vision localization algorithm. This localization algorithm can obtain high localization accuracy in most cases, but the real-time performance is poor.

This section first analyzes the occlusion scene, and then analyzes the accuracy and real-time performance of the binocular vision localization algorithm proposed in the literature and the monocular vision localization algorithm of the basic algorithm in this paper. Through a large number of references, a static monocular visual ranging method is proposed in the invention patent of "A Monocular Vision Ranging Method". The monocular vision ranging method has the advantages of fast speed, accurate measurement and low cost. According to the current situation, it cannot combine the camera angle data and video data in real time. In the process of camera imaging, due to u f, then v ≈ f , indicating that the image distance is the same size as the focal length. Assuming that the camera is in an ideal imaging state, the light passing through the object can be reflected on the imaging plane through the small hole, the target point and the imaging point are in a straight line, and the target point is projected to the imaging plane through the pinhole connection. The point is the imaging point. Iris feature extraction is the key technology in iris recognition. Different extraction algorithms use different encoding methods for iris regions, resulting in different iris feature codes, resulting in different recognition effects. The pros and cons of an iris recognition product It often depends on the feature extraction method used.

It can be seen that the contour of the human body has changed significantly at the position of the head and shoulders contour points. Taking the vertex of the head as the starting point, the two sides of the contour are scanned from top to bottom respectively. It can be seen that the contour point A has the trend of first downward and then to the left; the contour point B has the first downward trend. , the back-to-right trend change feature. This time, the data extraction and processing of the camera and attitude sensor use the Python language. The main packages used in the program are: cv2 and serial. cv2, or OpenCV, is a cross-platform computer vision library released under the BSD license (open source).

2.2 The Computer Interactive Electric Piano Training

In the teaching of digital piano group lessons, in addition to the accurate teaching of piano skills, more attention should be paid to the training of willingness to play. Rhythm is the life of music. Only by mastering accurate rhythm and proper speed can you express music more deeply and vividly. In digital piano teaching, the sound should change in intensity according to the needs of the music, and the finger touches the keys. . First of all, the sound to be discussed here refers to the sound that is strong and full. That is, the sound of "going down" is usually said. Personal guidance is mainly used to simulate when a student has a problem with the teacher or the teacher needs to communicate with the student.

In this mode, other students in the class can practice freely according to the content assigned by the teacher. When solving these problems, all students use their brains to think of ways, thus accumulating a wealth of rational knowledge and being able to talk about the truth. It has the ability to use the knowledge learned to popularize music education. In the course of teaching, the author mainly adopts the method of group teaching first, teaching the theory and techniques of performance step by step and focusing on it, and repeatedly strengthens the basic concepts and essentials to different degrees. Focusing on improving students' learning ability is also the ability that piano group teachers should learn and possess. Teachers must have the ability to organize teaching, mobilize all students to actively participate in classroom performance, but be able to retract freely, keep students quiet and focused when teachers are teaching, and conduct good discussions and interactions with students, so as to ensure group lessons. teaching quality and effectiveness.

The group practice is mainly used to simulate the class, when the teacher designates some students to form a group and perform an ensemble. In this mode, the specific operations are as follows: The teacher selects the students who need to join the group, and the background color of the selected student terminal changes to the selected color. Sports stars under the modern halo are more likely to make teenagers worship idols lose their way, so sports stars As a public figure concerned by society, you should always pay attention to your own image on any occasion, so that you can play a more positive role in the influence on young people. American educator John Dewey put forward the idea of cultivating creative talents at the beginning of the 20th century, and our country also realizes the importance of cultivating creative talents. Music has a very special role in cultivating people's creative thinking.

2.3 The Construction of Intelligent System for Electric Piano Training

Sports mass media should be restrained to reduce negative effects; at the same time, sports mass media should play a good role in supervising sports competitions, so that some bad sports phenomena can be demonstrated in groups under the supervision of sports mass media, mainly used to simulate classes. The teacher assigns certain students to ensemble for the whole class. In this mode, the specific operations are as follows: the teacher needs to select the student terminals for demonstration in the group respectively, and the background color of the selected student terminals will change to the strobe color. The training of rhythm can promote the development of the left brain. It plays a role in the balanced development of the left and right brains of students.

Ultimately, it will play a positive role in promoting the generation of students' creative consciousness and the cultivation of creative ability. Any substance that can make sounds can be used as a carrier of rhythm training. In teaching, language and movements are combined for rhythm training. Rhythm training can promote the development of the left brain. It plays a role in the balanced development of the left and right brains of students. Ultimately, it will play a positive role in promoting the generation of students' creative consciousness and the cultivation of creative ability. Any substance that can make sounds can be used as a carrier of rhythm training. In teaching, language and movements are combined for rhythm training. The selection of the fitness function is very important for designing a state feedback matrix that meets the performance of the control system. In general, the dynamic performance and static performance of the step response of the common system in the time domain are used to determine the stability of the control system. The dynamic performance of the step response includes the delay time.

In order to ensure the accuracy of this experiment, we use a high-precision infrared rangefinder to measure the distance between the vehicle camera and the object to be measured and the height of the camera from the ground. Figure 17 is a schematic diagram of the laser rangefinder used in this experiment. If the left image is taken as the target image, take a certain projection point (m,n) on the left image, the projection point is the target object mapped to a point on the imaging plane of the left camera, and set an M× For a window of size N, find the window of the corresponding size of the right imaging plane along the epipolar line on its right imaging plane. There are 100 search results for the search term "marketing" in the digital library, numbered from No. 1 to No. 100, which is called a search queue. In the existing mode, the system can only display the information titles of the retrieval queue by paging. There are 100 search results for the search term "marketing" in the digital library, numbered from No. 1 to No. 100, which is called a search queue. In the existing mode, the system can only display the information titles of the retrieval queue by paging. The retrieval engine mainly completes the retrieval of metadata, performs fast retrieval according to the input conditions, and sorts the output results according to the classification. The user interface is a systematic way, including simple search, advanced search, primary result interface, and secondary result interface. Intelligent search engine is a new generation product of search engine using advanced artificial intelligence technology (also known as the third generation search engine).

3. CONCLUSIONS

In this paper, a non-calibrated scene human body localization algorithm is redesigned. The algorithm idea is to use the detected human body rectangle frame to replace the human body foreground information, perform sampling homography projection on the upper and lower sides of the rectangular frame, obtain the human body candidate foot points, and carry out Latitude clustering. The digital electric piano teaching system is an emerging product formed based on the continuous development, progress and improvement of the current digital information technology. It is cheaper than traditional pianos, light in size and rich in functions, allowing more people to participate in a wider range of music experience. Some rules and methods are summarized and the software and hardware construction of piano group lessons in our school and the development of piano group lessons in the future are summarized. Prospects offer personal opinions and suggestions.

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Adaptive Control of CNC Machine Tool Cutting Process Based on Artificial Brain-Computer Interface Technology

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Abstract:In this paper, an intelligent adaptive CNC system is developed based on the artificial brain-computer interface to realize the intelligent adaptive control of the cutting process of CNC machine tools and improve the cutting efficiency. The test results of intelligent adaptive control of the CNC milling process with the fuzzy controller show that the intelligent adaptive CNC system has good performance, can improve the intelligent level and adaptive ability of the CNC machine tool in the cutting process, and improve its cutting efficiency Through MATLAB/SIMULINK, the machine tool cutting process models under three conditions of closed-loop, open-loop and model reference adaptive control were simulated respectively, and the cutting performance was improved by 7.1%.

Keywords: Adaptive Control, CNC Machine, Cutting Process, Brain-Computer Interface

1. INTRODUCTION

The usual CNC machine tools have a low ability to recognize and deal with unpredictable, fuzzy and uncertain situations in the cutting process. In order to avoid or reduce the abnormalities that may occur due to the inability to deal with these situations, more conservative cutting is generally used in actual machining. Parameter, which is not conducive to give full play to the processing potential of CNC machine tools and improve cutting efficiency. Therefore, it is necessary to enhance the ability of CNC machine tools to recognize and deal with these situations, and to improve its adaptability and intelligence level in the cutting process. For this reason, adaptive control technology can be applied to the control of the cutting process, so that the CNC machine tool has the ability to adaptively adjust the cutting parameters in real time according to the processing conditions, so as to ensure the stable and normal operation of the system and a certain processing quality. Give full play to its processing potential, improve cutting efficiency, and protect cutting tools [1-6].

In the process of CNC machine tools, there are many unstable factors, mainly because it is a dynamic process, for example, the type and wear of the tool will have an important impact on the efficiency and quality of the machining, in order to ensure the cutting process The quality of work requires a comprehensive grasp of these elements to ensure the overall benefits of the enterprise. In order to ensure the efficiency of cutting work, the adaptive control method came into being. The use of this method in the actual work process can guarantee the quality of related processing work and effectively realize the optimal allocation of resources in the industry. As one of the important methods to improve the processing accuracy, efficiency and automation of CNC machine tools, adaptive control technology can self-identify, adjust, and modify according to the data input and output of the controlled object, and finally realize the optimization of the processing process [7-14].

So far, most of the research on the adaptive control technology of CNC machine tool processing by Chinese experts and scholars has adopted technical methods. Fan Hao, Li Hang and Wang Guofeng based on the theoretical cutting point of the workpiece and the theoretical cutting point of the tool in 2013. The coordinate relationship in the basic coordinate system of the machine tool is the same, and the comprehensive error mathematical model of the CNC machine tool processing process including geometric error and cutting force error is derived; adaptive control technology is one of the important methods to improve the machining accuracy, efficiency and automation of CNC machine tools , According to the data input and output of the control object, self-identification, adjustment, correction, and finally the optimization of the processing process. So far, most of the research on the adaptive control technology of CNC machine tool processing by Chinese experts and scholars has adopted technical methods. Fan Hao, Li Hang and Wang Guofeng based on the theoretical cutting point of the workpiece and the theoretical cutting point of the tool in 2013. The coordinate relationship in the basic coordinate system of the machine tool is the same, and the comprehensive error mathematical model of the CNC machine tool processing process including the geometric error and the cutting force error is derived; Guo Xiaojun, Wang Qupeng, etc., respectively, in 2008 and 2014, respectively, the networked monitoring technology of CNC machine tool processing Do research on monitoring and fault diagnosis technology [15-21].

Relatively speaking, there are relatively few researches on the adaptive control technology of CNC machine tools in China combined with patent analysis. To this end, this article uses patent analysis methods to analyze the application status, key technical directions, and core patents of China's CNC machine tool processing adaptive control technology from multiple perspectives. Guo Xiaojun, Wang Qupeng and others did research on the networked monitoring technology and monitoring and fault diagnosis technology of CNC machine tool processing in 2008 and 2014 respectively. Relatively speaking, there are relatively few researches on the adaptive control technology of CNC machine tools in China combined with patent analysis. To this end, this article uses patent analysis methods to analyze the application status, key technical directions, and core patents of China's CNC machine tool processing adaptive control technology from multiple perspectives. Using Thomson Reuters' Thomson Innovation database as the data source, on the basis of fully researching the subject industry background and technical field, the key technologies in the field are classified, and the intelligent error displacement compensation technology, intelligent vibration suppression technology, and intelligent drive are used [22-24].

2. THE PROPOSED METHODOLOGY

2.1 The Artificial Brain-Computer Interface

The system is flexibly configured and used, and provides a standard style software interface. In order to further understand the development direction of the self-adaptive control technology in the machining process of CNC machine tools in recent years, the author made a comparative analysis of the number of domestic and foreign patent applications in this field from 2005 to 2015. On the whole, intelligent operation, intelligent error displacement compensation technology , The intelligent maintenance monitoring function has always been the key research and development direction in the past ten years. In order to realize the true adaptive predictive control of CNC machining, indirect measurement and control of cutting force, a set of adaptive predictive control software must be written, and modularized, and added to the process layer software of the Huazhong I-type CNC system software.

This, combined with the limited manufacturing precision of the machine tool itself, makes direct measurement techniques of little engineering value. Based on the above reasons, using the principle of the mapping relationship between the motor current and the cutting force and the adaptive predictive control technology, a different indirect measurement method is proposed. The key technologies of adaptive control of CNC machine tool processing process are divided into intelligent error displacement compensation technology, intelligent vibration suppression technology, intelligent drive technology, intelligent tool monitoring technology, intelligent anti-interference function, automatic programming, intelligent maintenance monitoring Function. Since 2005, the number of patent applications in China in the field of adaptive control of CNC machine tools has generally increased. The number of applications in 2005 was 15, which decreased slightly in 2006. Since then, the number has increased year by year, reaching 163 applications in 2013. In the CNC milling process, when the cutting force changes, the current state signal is also constantly changing, and the signal has a lag, and there is no rule to follow. In order to solve this problem, the indirect measurement and control of cutting force is made practical. Jiangsu, Shanghai, Zhejiang, Liaoning, Shaanxi and other provinces are areas with relatively developed machine tool industries.

From the perspective of patent applications in various provinces across the country, patent applications in the field of adaptive control technology for CNC machine tool processing are all over the country, and the province with the largest number of applications is Jiangsu Province. Generally speaking, the above technical fields are the main application directions of my country's adaptive control technology patents. According to the analysis of the units with the largest number of domestic patents, indicating or measuring devices and compensation control devices are generally the focus areas in their patent applications. Huazhong CNC system is based on industrial PC as the basic hardware support environment and DOS operating system as the software support environment, realizing an open CNC system software platform, providing a convenient secondary development environment, which can be used for different CNC systems.

2.2 The CNC Machine Cutting Process

For example, in the MRAC feedback loop, in the actual cutting process, after being affected by multiple influencing factors, the state parameters of the machine and equipment will change accordingly. At this time, the sensor can play an important role as a bridge and can perform real-time monitoring of these parameters. Monitor and adjust the parameters when necessary, and then the MRAC control unit can complete the evaluation work in time, and compare the information and data. After the conclusion is drawn, the signal is sent to the CNC to ensure the best of the entire machine and equipment. change. The machining process of mechanical cutting is a complex dynamic process with highly nonlinear, time-varying, serious random interference and uncertainty. It is difficult to effectively control it with traditional adaptive control technology based on the precise mathematical model of the controlled process.

The intelligent control reflects the high degree of self-adaptation, self-organization and self-learning ability of people in control activities. It can deal with uncertain and inaccurate knowledge without relying on the mathematical model of the controlled process, and can obtain the complex controlled process. Satisfactory control effect, so intelligent control can be applied to the process control of machine cutting. The specific structure of the machine tool cutting MRAC model is also more complicated, which can be divided into feedforward device, feedback device and adjustment mechanism. The specific content of these different components is also different. Here, the feedforward device and the feedback device are mainly explained. There are certain differences between these two devices and other devices in the model, because these two devices are proportional links. Considering a variety of factors, this mathematical control model has more specific content, which is a huge challenge for industry workers.

In the process of machine tool processing, the cutting performance will not only have a great impact on the quality of the parts, but also easily damage the tools. The cutting process of the machine tool, tool, and workpiece system is an unstable process. It is often disturbed by many uncertain factors from the outside world, which causes the state parameters in the cutting process to change at any time. If it is not adjusted in time, the cutting performance will be greatly reduced. Through MRAC adjustment, the parameters of cutting performance can be kept in a stable state all the time.

2.3 The Adaptive Control of CNC Machine Tool Cutting Process

The structural block diagram of the intelligent adaptive CNC system developed on the basis of the Huazhong I CNC system mainly includes two parts: a CNC unit and an intelligent adaptive control unit. The main tasks undertaken by the CNC unit are servo control, CNC machining, and in the cutting process. In real time, it exchanges information with the intelligent adaptive control unit, adjusts cutting parameters, etc.; the main task of the intelligent adaptive control unit is to detect the processing status, optimize the cutting parameters in real time according to the processing status, and exchange information with the CNC unit. In order to give full play to the guiding role of the processing concept, it is very important to realize the transformation of the processing concept.

The transformation of the processing concept needs to grasp multiple influencing factors. The following main tasks need to be promoted: First, it must be combined with the actual development of the enterprise itself. Including operating costs and infrastructure construction, etc.; secondly, it is necessary to combine the actual needs of the development of the industry to achieve the transformation of processing concepts in a targeted manner; finally, it is to conform to the

development trend of the times and help the development of the enterprise. Now take the cutting force constant at the set value during the machining process to illustrate that MRAC can adjust the cutting force in time to keep it at the desired cutting force when the external factors (for example, the change of the back-engagement amount) interfere with the cutting force. According to the experiment, the parameters in the machining model are known Ks =1 500N/mm 2 , n=600r/min, Kn =0.95mm/(V· s), ξ=0.68, p=1, m=1, ωn = 22rad/s,The amount of back-cutting is changed according to a sine curve from 1 to 3mm, and the expected value of cutting force is set to 1 000N. Substituting the above parameters into the mathematical control model of Fig. 3, the simulation diagram shown in Fig. 4 can be obtained by using MATLAB/SIMULINK tools. The system has two forms: Insert the self-developed 8098 single-chip intelligent adaptive control card into the numerical control unit, the numerical control unit exchanges information with the intelligent adaptive control unit through the dual-port RAM memory of the card; insert the control card into another PC to form an intelligent adaptive control unit.

3. CONCLUSIONS

The method and approach proposed in this paper to realize the intelligent adaptive control of the cutting process of CNC machine tools is simple, effective and feasible. The 8098 single-chip intelligent adaptive control card developed by the 8098 single-chip microcomputer provides a simple structure for the realization of intelligent adaptive control of the cutting process. Reasonable and reliable technical means, the performance and cutting efficiency comparison test results of the CNC milling process with the parameter adaptive fuzzy controller show that the established intelligent adaptive CNC system has good performance, greatly improved cutting efficiency, and can effectively Prevent the occurrence of tool breakage and protect the tool. In actual production, it will have greater use value and prospects for popularization and application.

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Research on Autonomous Learning Terminal System of College English Translation Based on Distributed Network Intelligent Editing Technology

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Abstract:Based on distributed network intelligent editing technology, the mobile learning mode can effectively mobilize the enthusiasm of college students in foreign language learning, comprehensively improve college students' language skills, teach and cultivate students' translation ability, change the traditional teaching mode of teaching instead of learning, and strengthen students' autonomy Learning ability, this research starts from the autonomous learning theory of college English translation, and hopes to cultivate students' initiative and active awareness by mastering practical and effective online English translation methods, and accumulate a certain English vocabulary foundation in the process of actual knowledge learning and translation knowledge points.

Keywords: Autonomous Learning Terminal, College English Translation, Distributed Network Intelligent Editing

1. INTRODUCTION

Since the 1960s, the influence of cognitive psychology has become increasingly powerful. Based on cognitive psychology theory [1], Bruner and Ausubel proposed some principles of constructivism learning theory. Constructivist learning theory advocates that learning is student-centered [2]. CAPP plays an important role in CIM S, which is the bridge of CAD/CAM integration. Process planning itself is a dynamic process, so an effective method to achieve the automation [3] of process planning and the comprehensive level of English application have a great auxiliary role for students' future work, study and life, and can improve students' practical communication ability [4].

The importance of college English translation knowledge stems from its ability to enhance and improve the actual communication level of college students, and has a large room for improvement in students' ability to utilize English knowledge [5]. It has always been the focus of CAPP research. The derivation method is easy to implement, but difficult to adapt to Multi-variety and small-batch CIM S production environment [6]. The scaffolding teaching model based on the Soviet psychologist Vygotsky's "zone of proximal development" theory is a relatively mature teaching strategy under the guidance of constructivist teaching thought. Its basic idea is to decompose complex learning tasks [7], and construct a "scaffold" conceptual framework between students' existing knowledge level and learning goals [8]. Contemporary college students communicate with classmates, friends, teachers, and parents through the Internet from time to time. They like Express their opinions through forum posts [9], follow-up posts, etc. If they have questions, they immediately go to Baidu to find answers. They are keen to read e-books, magazines, news, etc., which have completely changed the traditional information acquisition mode [10].

What is the development status of MOOC translation teaching research field? Exploring whether MOOC translation teaching can promote the development of this field to a certain extent [11]? The author has developed a strong interest in this and stimulated the desire to conduct in-depth research on it. Under the guidance of the tutor, the MOOC-based translation teaching is taken as the research direction of the master's thesis [12]. Based on the difficulty of solving the above-mentioned problems, a practical method is to establish a relatively easy-to-implement security system, and at the same time establish a corresponding security auxiliary system according to a certain security strategy [13]. Rrs is such a system. As far as the current system security situation is concerned, the system has the possibility of being attacked at any time [14]. Policies are rules that define how the network should function to support goals. Specific to the category of network management, policy is a set of business rules that guide and determine how to manage, allocate and control network resources [15]. Enforcement of policies ensures that business rules are always followed. Business rules constitute conditions that guide actions [16].

Learners should take more responsibility for the personal thinking activities triggered by teaching; knowledge acquisition is the result of the interaction between the learning individual and the external environment [17]; knowledge is not instilled by teachers, but learners through collaboration, discussion, and communication in certain situations. , interactive. In order to make full use of the original process files [18], the derivative CAPP is very necessary. By using the group technology, the standard process of a class of parts can be quickly retrieved and modified. The generative CAPP can be used for new Varieties and new parts are created by process, which standardizes and standardizes process design. [19]

The autonomous learning theory of college English translation has gradually attracted people's attention in the 1970s [20]. According to the autonomous learning research theory put forward by western research scholars, the teaching thinking reform in the new era has been realized, and the autonomous learning theory has also been formally introduced. people to the actual teaching work [21]. Translation is the linguistic practice of reproducing the content in one language form in another language form. On the interface between the subjective world and the external social and cultural network, translators, guided by problem awareness, reconstruct knowledge experience and realize the contextualization of the constructed knowledge and experience. At the same time,

significant changes have taken place in the field of education and teaching [22], The activities related to teaching and learning are closely related to the Internet, and the Internet is more and more closely related to teachers, students, teaching content, and teaching resources [23].

2. THE PROPOSED METHODOLOGY

2.1 The Distributed Network Intelligent Editing Technology

At present, no such relevant definition has been found. According to the above definition of MOOC and translation teaching, this paper defines "translation teaching based on MOOC" as: taking college students as the main learning group, carrying out translation learning activities on the MOOC platform to complete the translation course tasks under the MOOC platform form of learning. Real-world data is generally dirty, incomplete, and inconsistent. If these data are not processed, they will directly act on the data mining process, which will make the data mining process into chaos. The process of data cleaning is to try to fill in vacancies, identify outliers, eliminate noise, verify data integrity, resist replay attacks, and encrypt data.

It is composed of a set of protocol suites, and its components can be set on network devices such as hosts, routers, gateways, and firewalls to realize secure communication between end-to-end, end-to-gateway, and gateway-to-gateway. In response to the upsurge of college English teaching reform, our school has built an autonomous learning center that basically meets the independent learning mode of college experience English in recent years. There are 9 autonomous learning centers and 658 seats. The digital language learning system includes a classroom teaching system. , Self-learning system. The WZCAPP system divides the part structure information into main shape elements, auxiliary shape elements and characteristic elements according to the full information method. When describing, it adopts the first main shape elements, then the auxiliary shape elements, and finally the characteristic elements. The outer surface is first and then the inner surface; the outer surface is from left to right, and the inner surface is from right to left. The principle of describing parts. To build a translation work system is to hope that students can form a good English translation thinking mode in actual practice. , instead of closely following the teacher's thinking for boring and single English translation knowledge learning. The translation teaching network platform also provides a diverse dynamic open space for non-English major learners to read and explore translation theories and techniques, and learners can freely choose learning materials according to their own needs. With the rapid development of "Internet +" technology, educational technology is also constantly The updated, mobile autonomous learning concept quickly integrates relevant science and technology into the field of modern education, especially the field of foreign language teaching, so the mobile autonomous learning model has its own typical characteristics spend.

2.2 The College English Translation Self-Learning System

The self-learning content of the reference class is the listening and speaking training of man-machine dialogue and the oral training in the form of pairwork in front of the teacher and receive the personalized guidance of the teacher. This module is a semi-generative and distributed structure. Due to the diversity of parts and production environments, the CAPP system should be an organic collection of various decision-making methods and various program structures. According to the relevant production environment information and parts information , automatically select the corresponding reasoning sub-module. As the modern information technology medium that college students are most exposed to, the Internet has a great impact on the study and life of college students.

2.3 The Activity Real-Time Cloud Sharing Algorithm Design

Constructing a translation work system allows college students to study and train college English translation courses in simulated environments and scenarios. The most representative online communication tools include MSN, QQ, blog, forum, Wiki, and online chat. Room, E-mail and e-learning community, etc. Using multi-modal and three-dimensional interactive means, an open interactive public space can be built among individual learners. The learning environment of the mobile self-learning mode can be independently created. In the mobile self-learning mode, teachers upload the learning content to the mobile learning platform through the wireless network, and students can obtain learning resources at any time and complete various learning tasks such as foreign language video, voice, and text in a timely manner. Lecture style is the teacher's long-term teaching work. unique performance formed in. With the deepening of research, the unique role of lecturing style in students' learning has also been emphasized.

The author believes that the teaching style of translation teachers in MOOC videos can be mainly reflected in body language. The task of the classification algorithm is to construct a classifier, and then the classifier divides different data into different categories. A classifier is a program that automatically creates a class label for each dataset containing multiple attributes. Work provides authentication and encryption mechanism for the security of end-to-end communication, and the correctness of work function is completely based on the correct formulation and configuration of security policy. The traditional method is to configure the policy manually, but this method is inefficient and error-prone in large distributed networks, and the wrong policy may cause communication blockage and serious security risks. Strengthen students' understanding of British and American culture, cross-cultural communication and other aspects, and broaden their horizons.

Furthermore, the unique hypertext link mode and powerful retrieval function of the network enable students to efficiently retrieve and obtain the translation material library on the campus network. Output module: The generated process files can be browsed on the screen. The process card and the process diagram are on the same screen, which is very intuitive. The generated process files can also be printed out in the form of reports. The teaching work of English translation can not only stop at language use in the link of memory and memory, students also need to understand and master the relevant English cultural knowledge, as well as the historical background of the English-speaking countries

3. CONCLUSIONS

The mobile self-learning model has shown significant effects and many advantages in teaching practice. However, due to factors such as the research time of the research group and the small number of subjects tested, the members of the research group will still conduct further in-depth research on this subject area in the follow-up teaching practice. Carrying out network-based translation self-learning in college English

teaching is conducive to stimulating students' enthusiasm and initiative in translation learning, accumulating translation experience in translation practice, developing and applying translation skills in the integration of knowledge and action.

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Construction of Online Guidance Framework for English Language and Literature Based on Multi-Link Data Sharing Platform

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Abstract:Combined with the technical characteristics of blockchain and the development status of the multi-link sharing platform model, the article initially builds the overall framework of the high-quality educational resource platform for colleges and universities based on blockchain technology. The cohesive scientific and systematic experimental teaching system, the computer-aided English language and literature teaching management system, implemented the overall architecture design and functional module analysis of the system, analyzed the key technologies of the system, and analyzed the English subject through the knowledge representation based on the concept map model. Information and test questions.

Keywords: Online Guidance Framework, English Language and Literature, Multi-Link Data Sharing Platform

1. INTRODUCTION

In the face of new tasks in the new era and new stage, the Ministry of Education has put forward the policy of "consolidating, deepening [1], improving and developing", consolidating achievements, deepening reforms, improving quality and sustainable development. At present, due to the imbalance of economic development levels in the eastern and western regions of our country [2], resulting in the uneven development of higher education. Although there are "E-learning" online learning platforms represented by MOOCs, there is a lack of dynamic supervision [3], recording and evaluation systems in the learning process, so that the results of online learning are not recognized by the public [4].

In view of the trend of national college English teaching reform and the analysis and research the parameter filename here is the file name to be written, clsidEncoder is the class requirements of the times and cultivate talents with strong English application ability, we must start from the three aspects of knowledge, quality and ability [6]. In view of the trend of national college English teaching reform and the analysis and research identification code CLSID of the encoder used when writing the times and cultivate talents with strong English application ability, we must start from knowledge.

Therefore, the intelligent computer-aided English language and literature teaching management system integrating artificial intelligence and computer-aided instruction design will separate the teaching content and teaching plan, based on the student model in the student database [8], using the retrieval and reasoning of the intelligent system to dynamically generate personalized Teaching content and programs. EncoderParams is optional, it provides parameters for the encoder, and is NULL when not in use. [9], representing Therefore, if you want to store the image in another format, a general intermediate data structure is constructed as a "media" between different formats of my country's modern agriculture [10]. Agricultural postgraduates should not only master a solid basic knowledge of disciplines, but also have a broad understanding of the entire discipline system and disciplines related to their majors (Historical Records, 2018) [11].

As long as it can convert between each image format and the intermediate format. [12]. The system is mainly composed of the following parts: network surveillance cameras, distributed network computing nodes, topology computing workstations, streaming media servers and databases, network devices (such as switches) [13], terminal display screen array, and remote calibration and registration software running on the nodes. The distributed network computing nodes are further divided into front-end network [14] video segmentation nodes and back-end network video fusion display nodes. In today's society, education informatization has become an important indicator to measure the modernization of education [15].

In 2010, the United States promulgated the National Educational Technology Plan 2010, entitled "Transforming American Education [16]: Empowering Learning with Technology". The plan clearly puts forward a learner-centered, technology-supported educational idea, emphasizing all relevant curriculum resources and technologies [17]. The networked language teaching platform is to use computer network technology to build a resource management platform with digital shared teaching resources. In 2019 [18], it can realize the mutual conversion of different file formats [19].

At present, while blockchain technology has attracted the attention of all walks of life [20], the education industry is also using this technology to explore and solve industry problems and promote the innovation and development of the education industry. With the help of multimedia network technology, it is an important direction for language teaching reform to create a personalized virtual situation for language learners [21], so that they can learn and use language in a "real" language environment, and use technology to make up for some deficiencies in traditional teaching [22]. And this intermediate structure is represented as a dedicated internal image under the Tina platform. In this design, the FPGA adopts the APA Qiao O chip of Actel Company. [23], and completes all data access tasks. Namely the database server. Instructional Model refers to a systematic and theoretical operation style from teaching principles, teaching content,

teaching objectives and tasks, teaching process to teaching organization forms under the guidance of certain theory (Ye Lan, 1993) [24].

2. THE PROPOSED METHODOLOGY

2.1 The Multi-Link Data Sharing Platform

The education and teaching practice at home and abroad from ancient times to the present is the conscious and unconscious application of a certain teaching mode [25]. A large number of experts and scholars have analyzed, combined, studied and explained the various elements of the teaching mode, forming a variety of far-reaching theoretical schools. The microcomputer already has the digital image processing capability comparable to the performance of the professional DSP development board. At the same time, the microcomputer has a more stable, mature and easy-to-use operating system than before, and developers usually do not need to know too much about the underlying drivers and basic algorithms, which greatly improves the efficiency of software development.

This learning theory has prevailed in the United States for more than half a century and is also dominant in the world. The construction of the networked language teaching platform aims to strengthen students' understanding of foreign language courses and cultivate students' practical ability in the actual language application environment, and discusses the feasibility of applying blockchain in the field of education in the future; Blockchain technology has designed an educational resource circulation model that combines dual blockchains with smart contracts.

Under the guidance of the "Education Informatization 2.0 Action Plan", educational institutions in all parts of my country have actively carried out the exploration of the smart education model based on the local reality, and accumulated rich experience for the establishment of the unified model of smart education in my country. The current trend of continuous development of information technology.

2.2 The Construction of Online Guidance Framework for English Language and Literature

One is social networking, which has become a key factor in the development of the Internet. At the same time, social networks also have the advantages of low cost and strong openness. College counselors are an important force in the process of ideological and political education for college students, as well as organizers, guides and companions of college students' work. It is one of the first choices for college students to show their individuality, maintain the relationship between social entities, and express their interests. Adhering to the principle of discipline in teaching resource construction means that in the process of teaching resource construction, the differences in content of different majors and disciplines are fully considered, and resources are selected and customized around different majors and disciplines, highlighting the characteristics of majors, departments, and schools. It is of great significance to develop the disciplines, cultivate the comprehensive quality of students, and improve the quality of education and teaching. Based on the above method, the calibration and registration of network camera parameters are completed on the distributed network computing nodes, the scale of the images to be registered is achieved, and the accurate projection transformation of the original panoramic basemap and the video frames to be registered is output. parameter. The FPGA chip has 150 "XX" system gates, 61 logic units, 2 phase-locked loop PL cores embedded with 36KB dual-port SRAM, and supports a maximum of 242 user I/0 (I/0 voltage is 3.3 V and 2.SV are available), but it is not bundled with a specific pen, brush, image and font. In GDI, to use stroke lines.

Computer-assisted teaching began with the continuous updating of ou must use the SelectObject function to select a specific pen object into the acquired device description table, and the selected pen will be used for all lines drawn later. Technologies such as slides, records and silent films were used to assist teaching as early as the beginning of the twentieth century. Abundant slot selection reserves abundant room for expansion, forming a converged and unified network. The complete IPv6 features meet future upgrades and provide a reliable network core support for the Networked Language Experiment Center. Decentralization is the most essential and significant feature of blockchain, and it is also the biggest difference between blockchain and traditional distributed databases. The above three types of equipment jointly form the backbone network for foreign language experiment teaching, and provide a full gigabit, safe and secure network. A stable campus LAN, creating a good network environment for teachers to work and students to attend classes.

2.3 The English Language and Literature Based on Multi-Link Data Sharing Platform

For example, when we are currently conducting WeChat transfers, data management and storage rely on Tencent's data platform, while in the blockchain, all transaction data are stored in the network nodes of each block. The system divides the textbook into units by chapter. To facilitate searching, set the serial number of the chapter to the serial number of the unit. When the student selects a unit, the unit number UnitNumber will be recorded at the same time.

If the study ends. Specifically, in terms of public English teaching for agricultural postgraduates, the purpose of information literacy education is to cultivate students' ability to independently acquire, identify, process, apply and evaluate information, that is, to find, select, utilize and evaluate the required teaching among the massive teaching resources. The ability of resources refers to students' self-determination, self-selection, self-regulation, self-evaluation and reflection in learning activities under the help and guidance of teachers or others. After the network video segmentation node accesses the database management system and obtains the working parameters, it can process and segment the collected real-time video stream.

The video frame images obtained from the nodes finally need to be transmitted to the back-end network video fusion display node for splicing and fusion with the panoramic basemap. The above function to create and install the TV window encapsulates the Some tedious program codes such as window initialization and event processing in the underlying Xlib library, the following figure is the function call diagram of the grayscale image display process in Tina. Information technologies such as digitization, networking, and intelligence are fully utilized in teaching design. The English teaching of the network-based information platform can digitize valuable classroom information and collect it into the data center. Students can complete classroom teaching content and after-class autonomous learning through computer terminals at any time and anywhere. The blockchain data structure is composed of ordered units of all the blocks within it.

3. CONCLUSIONS

This paper designs and implements an intelligent computer-assisted English language and literature teaching management system, which improves the English learning quality of students and the teaching quality of teachers. The realization part of the system analyzes the realization process of the system teacher management module, student management module and database configuration in detail. The ecological balance of the traditional college English classroom is broken, and the unbalanced college English classroom teaching further leads to the occurrence of many disorders. The experimental results show that the functions of the designed system operate normally, and the two-way intelligent interaction of teaching and learning is realized.

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Construction Of an Online System for Sino-German Cooperation to Cultivate Applied Talents Based on Distributed Networked Cloud Terminals

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Abstract:A new distributed SCADA system architecture is given, including infrastructure, distributed resources and task processing, distributed real-time data processing, and distributed data processing. The foreign language quality of Sino-foreign joint training of applied talents includes not only good foreign language knowledge, but also the application level of foreign language knowledge, cross-cultural communication ability and innovation ability. The reform and innovation of the practical teaching of a Sino-German cooperative logistics management major has established an enterprise-led application-oriented practical teaching system for college students, and analyzed the innovation and application effect of the system. Finally, the accuracy and efficiency of the proposed intelligent monitoring structure system are verified by the actual experimental results.

Keywords: Online System, Sino-German Cooperation, Cultivate Applied Talents, Distributed Networked Cloud Terminals

1. INTRODUCTION

In recent years, the development trend of globalization has not only swept through every corner of the economic field, but also penetrated into the field of higher education like a whirlwind [1]. Sino-foreign joint projects cultivate talents with international vision and international competitiveness to meet the needs of social development. German university education ranks in the forefront of the world [2]. It formed a relatively complete education system in the 1970s, and achieved interoperability at the two levels of basic education and higher education [3]. Comprehensive universities and applied universities can exchange courses and credits, forming a comprehensive system. Orientation three-dimensional education model [4]. Therefore, taking the logistics management major as an example, to explore the practical teaching system of subject education?

How to integrate the important theoretical and current abilities of the construction of communication, innovation and practical application-oriented practical teaching system into the training of students? [5] What kind of meaning should the school provide to the students? The data scale of various centralized power distribution cloud platforms has basically reached tens of millions [6], so the processing efficiency and storage capacity of real-time databases face new challenges and opportunities. However, as a localized education model in China, due to the relatively short development time It is short, the experience of running [7] a school is not rich enough, and there are still some problems on the road of running a school. In order to make its development more rational and standardized; for its existing problems, relevant departments should adopt legal constraints and norms when necessary [8].

The efficient operation of distributed energy optimization scheduling relies on advanced communication technology, which supports the coordinated operation of multiple distributed energy resources, the participation of user-side demand response [9], and flexible transactions. With the development of the ubiquitous power Internet of Things, more and more power devices are being connected to the power grid. However [10], the interface overhead is huge and the performance is unsatisfactory. In this paper, SALSA is used to analyze the logs of the Hadoop cluster to obtain relevant statistical data. However, due to the large delay of log analysis, it cannot well meet the real-time requirements of the monitoring system [11]. Foreign language quality refers to people's ability to master foreign language and use it properly through learning foreign language. In the process of Sino-foreign joint training of applied talents, the cultivation of foreign language quality is an important part [12].

The purpose of students learning foreign languages cannot stop at preparing for exams. At present, there are nearly 400 students in this major [13], and 60 of them go to Germany for exchange study. Two classes of students have successfully graduated, and half of them have obtained undergraduate degree certificates from both universities. Graduates go on to study for a master's degree [14]. Xiao Huaiyun discussed the feasibility and guarantee projects of attracting college students' logistics design competition in the important undergraduate teaching of practicing the German model and building a high-level application-oriented university [15], comprehensively introducing the advanced German modular teaching model, and taking joint measures to enhance the innovation of college students [16]. Ability and improve practical teaching effectiveness, formulate professional talent training plans, and achieve results in the curriculum system of professional teaching [17]. Compared with centralized real-time databases, distributed real-time databases can distribute and store data in multiple data nodes, which can effectively alleviate the need for a single computer. data processing pressure [18].

Compared with the centralized real-time database, the distributed real-time database can distribute and store data in multiple data nodes, which can effectively relieve the data processing pressure [19] of a single computer. my country's Sino-German cooperation in running schools can be traced back to 1907, which has a history of more than 100 years. In 1907 [20], the then German doctor Erich Paulun established Tongji Medical School in Shanghai Tongji Medical School.

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The German Medical School, this move opened a precedent for Sino-German cooperation in running schools [21]. To learn a foreign language, no matter in what way or for what purpose, you must first master the rules of the language. In other words, it is to learn and master the basic elements [22] of the language, such as pronunciation, vocabulary, grammar and so on [23]. This is the basic condition for having a good foreign language quality [24]. Without rules, a circle cannot be achieved, and a strict management system is a necessary means to ensure the smooth progress of the Sino-foreign cooperative education [25].

2. THE PROPOSED METHODOLOGY

2.1 The Distributed Networking Cloud Terminal

In the early stage of project operation, Wuhan Business School emphasized the ability of application-oriented materialization in accordance with the relevant system of the Ministry of Education of my country. Among them, the basic ability refers to having the characteristics of German, mathematics and flow management undergraduates, which is to cultivate specialized and practical logistics talents, and the basic computer application ability; the instrumental ability refers to mastering the logistics management and the basis for the research on the ability requirements of the logistics post group. In the above, the technology of statistics, evaluation and optimization in the response process is designed, which can be used for a comprehensive practical teaching system of logistics management, distributed resources and task processing. Among them, distributed resource management can be divided into node state management and resource state management, etc. It is mainly responsible for monitoring the online and offline state of server nodes and the usage of hardware resources.

State Grid Corporation of China introduced the concept of cloud computing platform into the power system, and pointed out that the cloud computing platform has a significant supporting role in improving the energy efficiency of power grid application business according to the application of cloud computing platform in different applications of the power system. Energy optimal scheduling provides a verification platform for models and algorithms. This paper builds a cloud platform for distributed energy optimal scheduling based on Cloudera. The platform architecture takes the pilot application of distributed energy optimal scheduling as the design goal. Since the advent of the Internet, surveillance technologies and strategies have also evolved. With the development of the Internet, related monitoring has also changed from the initial local area network monitoring to the regional network monitoring, and then to the current cloud monitoring, which basically is to continuously improve service efficiency and resource utilization while meeting the continuous needs of users.

The overall level of the institutions that cooperate and exchange with the German side is low. It is not difficult for us to understand the reason: because Hefei College itself is positioned as a “local, applied, and internationalized” school, although it is a major feature of the college. Language is the carrier of culture, and it is also cultural. In part, a specific language is always rooted in a specific culture, and cultural differences are bound to be reflected in the language.

2.2 The Sino-German Cooperation to Cultivate Applied Talents

Mainly through company visits, graduation internships, and full-time experimental teachers to develop experimental projects. Sino-German Logistics takes measures such as cultivating co-construction of majors, entrepreneurs entering classrooms or logistics design competitions, etc., to cultivate students' practical ability, the ability to integrate theory with practice, and innovation. Construction and improvement of logistics management and engineering virtual simulation, experimental teaching center and physical experimental teaching center. For most scheduling control systems, SCADA data processing modules are in the form of one master and multiple backups, that is, only the master node processes data in real time, and the rest The node is basically in a standby state. It can form a virtual, abstract and dynamically scalable resource pool, and then provide services such as storage capacity, computing power and development platform on demand through the Internet. Residents' electricity consumption time is usually concentrated, and electricity consumption habits will change with temperature, humidity, weather and other factors, resulting in unpredictable electricity consumption behavior. For ordinary residents, air conditioners, washing machines, and electric water heaters usually consume a lot of power. The strength extension function has managed the number of instances of each application in the cloud platform. Improve the efficient use of cloud platform resources by controlling the number of instances, and realize the self-management and adaptive functions of the cloud platform.

2.3 Build An Online System for Cultivating Applied Talents

The teachers have relevant examination, teaching and overseas study experience. In order to deepen the reform of Chinese education and teaching the machine has broken the record and practiced, learned from the master, and changed the passive practice to the main one. Relatively speaking, the cloud computing system has very good flexibility, and can achieve massive data by adding nodes. Storage and processing requirements, but also increase nodes in the horizontal direction.

On the basis of the cloud computing platform, the overall process of realizing the distributed resource intelligent monitoring system is as follows: firstly, through the acquisition layer, the terminal sensing acquisition system receives the monitoring tasks and optimizes the monitoring strategy, and realizes the energy storage. Distributed energy mainly includes such as Energy equipment such as distributed wind power, distributed photovoltaics, distributed energy storage, and distributed dispatchable units. In this chapter, the characteristics of distributed energy are firstly studied, and the optimal scheduling model of distributed energy is established, which fully considers the economics and environmental protection of distributed energy optimal scheduling. As shown in the figure above, the available memory and available disk are the fixed resource usage of the application on the cloud platform, and are also the resource usage limit of the application on the cloud platform.

CPU usage, used memory and used disk are real-time dynamic resources. In order to cultivate high-level compound application talents with a certain level of scientific research and an international perspective, it is not enough to simply communicate at the undergraduate level; Based on this, it is necessary for the college to vigorously develop the planning

and construction of the master's professional disciplines in the school in light of its own situation. In order to cultivate high-level compound application talents with a certain level of scientific research and an international perspective, it is only through exchanges at the undergraduate level. It is far from enough; based on this, it is necessary for the college to vigorously develop the planning and construction of master's disciplines in the school based on its own situation.

3. CONCLUSIONS

This paper argues that the key technologies of centralization are discussed comprehensively considering the computing elasticity advantages of cloud platforms. In addition to real-time database and SCA-DA system, it also includes elastic event queue and elastic application framework. Doing a good job in Sino-foreign cooperation in running schools mainly lies in three aspects: grasping the key points and cultivating leading talents; From the aspects of cloud computing platform management system, intelligent monitoring architecture and intelligent monitoring implementation method, the overall implementation method of the distributed resource intelligent monitoring structure system scheme is elaborated. To lead the way, implement basic team building; integrate resources to build a teaching.

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Research on the External Technical Support and Intelligent System of China's Green Development under the Internet Background

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Abstract:This paper studies the external technical support and intelligent system construction of our green development under the background of the Internet. First, with the environmental problems existing in economic construction as the background, based on the current situation of the Internet development in the region, it analyzes the green development from the agricultural Internet and the industrial Internet. , Energy Internet and "Internet +" feature extraction from four perspectives, based on intelligent algorithms to explore green development paths, and intelligent system modeling to improve environmental quality and achieve high-quality economic development.

Keywords: External Technical Support, Intelligent System, Green Development, Internet

1. INTRODUCTION

In 2016, Tianjin's regional GDP was 1,788.549 billion yuan, an increase of 8.15% year-on-year, ranking second only to Beijing, Shanghai, and Guangzhou, and far surpassing Shenzhen. However, in recent years, Tianjin has a serious problem of haze pollution. It is an area with more serious air pollution in China. It has caused frequent occurrence of people's respiratory system and other diseases, while reducing atmospheric visibility and causing traffic accidents in severe cases. In December 2017, the National Bureau of Statistics announced for the first time the 2016 provincial green development index and public satisfaction. Tianjin's Green Development Index ranked 28th and the public satisfaction ranked 29th. Both indicators ranked relatively behind. Generally speaking, although with the rapid economic development, the people's material living standards are continuously improving, but the quality of life and true happiness are declining. The traditional industrialization and economic growth development concept established since the Industrial Revolution in the 18th century hides profound conflicts and contradictions. The development of science and technology has led to the rapid development of traditional industries and brought about rapid economic growth, as well as a series of resource and environmental problems [1-6].

After the 1960s, people began to realize the conflict between economic growth and ecological environment driven by traditional industrial development, and began to reflect on traditional development models. Although many negative effects and problems have been raised, the development concept of "zero growth" has also been put forward to the extreme, which is naturally difficult to be universally accepted by society. Therefore, the search for a new development model has become a hot issue of social concern, and the change of development methods and the realization of sustainable development have become issues of common concern for people from all walks of life. The concept of green development in our country originates from the ever-increasing destruction of the ecological environment and the increasingly polluted living environment. People have to face the reality. How to continue to develop in the future and how to develop scientifically must be faced right now. This concept was first put forward by President Hu Jintao in 2010. This is mainly because of global warming and the possible impact on human survival. The main purpose of green development is to actively and actively respond to global climate change issues. Strictly control pollution problems, and transform high-emissions and high-pollution to low-emissions and low-pollution. While using resources, we must ensure its sustainability and possible pollution to the environment, and the way of development is also sustainable. Close to the direction of green development [7-14].

The key purpose of green development is mainly to deal with climate change and the protection of the ecological environment, emphasizing that in the development of social economy, attention should be paid to how to rationally use limited resources to maximize benefits and reduce pollutant emissions. The idea of green development is the inheritance of the scientific development concept, and its goal is to build an environment-friendly and resource-saving harmonious society. This topic is determined in the context of increasing global and China’s increasing emphasis on ecological and environmental issues. The purpose is to find a suitable solution for resource shortages, environmental pollution and regional development imbalances through research on the concepts related to green development and coordinated development. A series of issues such as the way out for green development. How to grasp the general laws of urbanization and industrialization, reduce carbon emissions, protect the ecological environment, increase the emphasis on the ecological environment and resource endowments, and improve the overall quality of urban development while ensuring a reasonable economic and social development speed, has become Letter of important topics to be studied [15-21].

At present, domestic scholars' research in this field is mostly limited to a certain provincial capital or a certain region. Therefore, this article attempts to analyze from the national level to find a path suitable for China's green development. Green development is a way of economic growth and social development that considers resources, environment and

quality of life. It aims at efficiency, harmony and sustainability, and is part of a beautiful China. The "Thirteenth Five-Year Plan Proposal" points out that we must adhere to green and benefit the people and promote the formation of green development methods and lifestyles. Green development and sustainable development are the goals that people aspire to, and they are part of the high-quality economic development [22-24].

2. THE PROPOSED METHODOLOGY

2.1 The Green Development in the Context of the Internet

The focus of the green development theory is to pay attention to the harmonious co-development of the long-term survival environment of mankind and economic development. It has a relatively deep theoretical origin, which not only penetrates the traditional Chinese concept of "harmony between man and nature", but also covers the Marxist view of natural ecology. And integrated into the sustainable development concept advocated by modern society. Ecological agricultural products refer to the use of modern science and technology, while following the laws of ecology and ecological economics, and under the premise of protecting and improving the agricultural ecological environment, that are harmless, nutritious and healthy that meet the requirements of the quality and safety of agricultural products. Agricultural products.

For example, pollution-free foods, green foods and organic vegetables that people often mention are all green ecological agricultural products. "The ancient Chinese idea of'Harmony between Man and Nature' has evolved into today's concept of harmonious development between man and nature, that is, man’s production and living activities must be derived from nature and conform to nature, that is, mankind must coexist and coexist with nature. Maintain our green homeland. This harmonious thought of ancient Chinese philosophers is rich in content and shows the ancient people's attitude towards nature and equality. This is complementary to the concept of coordinated development of the world economy today. The concept of harmonious development of man and nature It laid the ideological foundation for China’s green development. Although the traditional ecological concept has certain limitations in some aspects, they advocate the maintenance of ecological balance and sustainable development, and oppose the destructive and unrestrained use of natural resources." It embodies the ancients' progressive ecological awareness. It is in line with China's national conditions and a road of development with Chinese characteristics; Wang Xinyu believes that circular development and low-carbon development are an indispensable part of achieving green development.

Hong Yinxing proposed the green development concept of turning green mountains and green waters into Jinshan Yinshan; Zhao Zheng said that the key to achieving green development lies in how to advocate the use of capital, technology and systems to achieve the overall high-quality and efficient development of the region

2.2 The External Technical Support for Green Development

Mobile phone networks are popular in rural areas to a certain extent, but the coverage of the Internet and high-end smart devices are still insufficient, and various communication supporting facilities are not perfect. "Internet + Ecological Agriculture" is an agricultural technological innovation that needs to go through various stages of the development and growth of a new industrial model. The widespread popularization of information infrastructure in rural areas will take time. On the whole, the Internet infrastructure in rural China is relatively weak. The collection of agricultural data resources and the construction of a specialized agricultural information service platform need to be improved. Many agricultural-related e-commerce platforms cannot be widely promoted in rural areas because of the lack of Internet infrastructure in rural areas.

In the process of establishing a comprehensive level indicator system for green development, all aspects involved in the green development process of urban agglomerations should be comprehensively considered, and a scientific, rigorous, comprehensive and systematic indicator system should be formed around the object of analysis and evaluation and the ultimate goal of the entire research. The construction of the index system should highlight the inherent requirements of green development, and conform to the current situation and laws of the economic and social development of the Beijing-Tianjin-Hebei urban agglomeration, and avoid being affected by people's subjective wishes. The selection of indicators in the evaluation system should meet the general requirements of statistics, and have reliable data sources. If the data of a single evaluation index in the system is too large or too small, statistical methods can be used to sort it out and use it. The entire index system should cover all aspects of green development, and be feasible and analyzable.

The new idea of green development requires governments at all levels in our country to pay attention to the exercise of administrative functions in order to adapt to the needs of the new situation. At present, due to the insufficient understanding of the meaning of the green development concept by some grassroots cadres and insufficient attention to the corresponding guidelines and policies, the functions of the green development policy have not been implemented in place. In some places, there are even situations where the actual implementation violates the requirements of the superior. Affected by traditional economic development thinking and models, some local governments in China still cannot get rid of the economic supremacy ideologically.

2.3 The Intelligent System for Green Development

To develop ecological agriculture in the context of the Internet, the government must increase policy and financial support, improve the construction of Internet infrastructure in rural areas, and establish a rural networked information platform to rationally develop rural information resources. Apply Internet technology to ecological agriculture, promote agricultural transformation and upgrading through scientific and technological innovation, increase scientific and technological content, rationally control and reduce the use of pesticides and fertilizers, and open the way for sustainable green development. The indicators selected in accordance with the above principles cover the four aspects of macroeconomics, ecological environment status, energy reserves, and national policy support. This paper lists the level of green development as economic growth green level, resource and environmental carrying capacity level, and urban environmental quality improvement Three modules horizontally.

The green level of economic growth mainly measures the ability of sustainable economic development. In other words, regions are willing to sacrifice resources and the environment in exchange for a choice of higher economic benefits; at the

same time, the regional economic level can more or less represent green development. ability. The level of resource and environmental carrying capacity measures the higher the protection of local resources and the environment. Taking into account the natural location conditions of some areas and the attributes of energy space allocation, in the selection of indicators, choose as many as possible and some can be controlled by humans. Factors in order to highlight the degree of attention.

The indicators selected in accordance with the above principles cover the four aspects of macroeconomics, ecological environment status, energy reserves, and national policy support. This paper lists the level of green development as economic growth green level, resource and environmental carrying capacity level, and urban environmental quality improvement Three modules horizontally. The green level of economic growth mainly measures the ability of sustainable economic development. In other words, regions are willing to sacrifice resources and the environment in exchange for a choice of higher economic benefits; at the same time, the regional economic level can more or less represent green development. ability. The level of resource and environmental carrying capacity measures the higher the protection of local resources and the environment. Taking into account the natural location conditions of some areas and the attributes of energy space allocation, in the selection of indicators.

3. CONCLUSIONS

"Internet +" green ecological agriculture provides opportunities for the development of agriculture in the new era. The development of the Internet has accelerated the transformation from traditional agriculture to green ecological agriculture. Applying Internet technology and promotion thinking to ecological agriculture will help the development of green ecological agriculture. In the integration of the Internet and green ecological agriculture, the popularization of networked information infrastructure in rural areas, the creation of special e-commerce platforms, the construction of informatized market mechanisms, and the training of informatized agricultural technical talents are all necessary for the development of green eco-agriculture in the future ideas.

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Research on the New Development Path of Maritime Higher Vocational Education under the Background of "Internet+"

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Abstract: Analyzed the basic requirements and demand for high-level talents in the current shipping industry in the new era, proposed the "order" training and shipping enterprise joint education model, and explored the construction of the curriculum teaching system. Based on the "ten measures to accelerate the development of the crew team" issued by the Maritime Safety Administration of the Ministry of Transport and the current situation of China's maritime education, it is proposed to establish a maritime education system with higher maritime vocational education as the main body, provide guarantees from policies and resources, improve the level of crew talent training in higher maritime vocational education, and make it the main force in China's vocational crew training.

Keywords: New Development Path, Maritime, Higher Vocational Education, Internet+

1. INTRODUCTION

China's accession to the WTO and the globalization of the economy, as well as the rapid development of the world economy and science and technology, have put forward higher requirements for the knowledge, ability, and quality structure of various talents. For maritime vocational education with international universality, this requirement is even more urgent. This article explores the new mode of maritime vocational education based on the characteristics of the current demand for talents in the shipping industry. However, there are currently the following problems with crew members in China: firstly, there is a serious shortage of crew members; Secondly, the comprehensive quality of crew members is not high; Thirdly, the structure of the crew is not very reasonable; Fourthly, the mobility of crew members has further intensified; Fifth, the professional advantages of crew members have significantly decreased, and the loss of high-quality crew members is severe; Sixth, there is a serious lack of in-service training mechanism for crew members.

In response to the crew development goals proposed by the National Crew Development Conference and the current practical problems in China's crew team, the Maritime Safety Administration of the Ministry of Communications has issued the "ten measures to accelerate the development of the crew team". Among them, 7 measures are aimed at improving the quality of crew members, 4 measures are aimed at increasing the number of crew members, and 2 measures are aimed at adjusting the structure of the crew team. These measures have played a positive role in accelerating the growth of the number of crew members and improving their quality.

The empirical study on the learning engagement of vocational college students and its influencing factors, conducted by Wang Yashuang, an assistant researcher at the School of Education Research at Nanjing University, shows that vocational college students have a high level of interactive learning engagement, but a relatively low level of autonomous learning engagement. Although students in higher vocational colleges have low learning initiative, they have more interaction with teachers. To promote the "the Belt and Road" strategy, the Chinese government has taken a series of measures, such as providing loans to countries along the "the Belt and Road", reducing tariffs, increasing aid, and eliminating debt. But the core is to help them cultivate talents. Internationalized talents are the fulcrum and key to the construction of the "the Belt and Road".

The realization of the "policy connectivity, facility connectivity, smooth trade, financial integration, and people to people connectivity" proposed in the Vision and Action to Promote the Joint Construction of the Silk Road Economic Belt and the 21st century maritime silk road lies in people-to-people connectivity. The core is to cultivate many composite talents who are familiar with and understand the countries and regions along the "the Belt and Road" and professionals in urgently needed fields. It is urgent to strengthen talent exchanges with countries along the "Belt and Road".

The "four abilities" refer to management leadership ability, foreign language application ability, adaptability ability, and practical ability. For many years, China's maritime education has attached great importance to the cultivation of students' foreign language application ability, adaptability, and practical ability. However, due to factors such as teaching methods and language environment, the improvement of foreign language application ability is relatively slow, and this ability has become one of the main factors restricting China's maritime talents' competitiveness in the international shipping talent market. In modern enterprise management activities, scientific and effective management can bring huge benefits. In modern maritime education, cultivating leadership skills should become a part of the teaching content.

2. THE PROPOSED METHODOLOGY

2.1 Maritime Education and Higher Vocational Education

Since crew members are highly skilled professionals in the field of navigation, higher vocational education in navigation should be the main type of education. The author believes that establishing a maritime education system with higher maritime vocational education as the main body is an important way to achieve the transformation of China from a strong maritime country to a strong maritime country, solve the "six major" problems in the current development of

Chinese seafarers, and implement the "ten major measures". Although the study did not mention the learning characteristics of vocational students majoring in navigation, it was found through statistics in daily teaching activities that nearly 40% of students majoring in navigation have low learning engagement, while only 10% of students have high learning engagement.

The way of interactive learning has undergone revolutionary changes due to the emergence of the Internet. In the information age, learners are immersed in a widely accessible information environment, and the work of teachers has also undergone a transformation. Students can engage in resource based autonomous learning and interactive collaborative learning from pre class to post class. In class learning methods have also changed from single to diverse, and the classroom is not only about providing teaching services, but teachers should also provide learning support services, which poses an urgent need for their information processing capabilities. Students who can participate in Sino foreign cooperative education and truly study abroad should generally meet the following conditions: firstly, students have a passion for further education abroad, and they want to improve their various qualities and abilities through studying abroad; Secondly, the family is relatively wealthy and can afford to study and live abroad. Thirdly, English proficiency needs to meet relevant requirements.

Not many students majoring in navigation meets the above three conditions simultaneously. This is because navigation majors are all maritime majors, and unless students have a strong desire to become crew members themselves, families with generally good conditions are not willing to let their children apply. There are also some students who perform well in English and have a desire to further their studies abroad, but the financial conditions at home do not allow it. The "eastward shift" of the international shipping talent market undoubtedly brings excellent opportunities for the development of China's maritime vocational education. The rapid development of China's economy and the transformation of educational concepts have provided subjective and objective guarantee conditions for the development of maritime vocational education in China. The "eastward shift" of the international shipping talent market has provided objective conditions for the development of China's maritime vocational education.

There are two points to note here. Firstly, this type of training should have a variety of forms, including both remote technical training and on-site technical training, making it convenient for teachers to learn. Secondly, it is not always possible for some teachers who participate in information technology teaching competitions to participate in training, but rather to create an atmosphere of universal participation, where everyone can participate, especially some experienced old teachers who are proficient in teaching content and methods. However, when faced with information technology, they often appear helpless. Here, the concept of peer assistance is proposed, many studies strongly support the use of group learning when learning information technology applications. The implementation of the "the Belt and Road" strategy has brought opportunities to the international development of China's maritime vocational education.

Maritime vocational colleges should comply with the overall national strategy, fully seize this opportunity, and achieve international and leapfrog development. Each maritime vocational college should call on the country to improve the construction of the legal system for maritime education and provide legal basis and guarantee for China's maritime vocational education to "go global".

Set up training institutions or overseas branches in countries along the "the Belt and Road", explore new models of Chinese foreign cooperation in running schools, and vigorously develop education for overseas students. On the one hand, it can serve the country's grand strategy and train the specialized talents needed by the country to promote the "the Belt and Road" strategy.

2.2 Analysis on the Current Situation of TK Ability of Teachers in Maritime Vocational Colleges

To form a strong competitive force in the international shipping talent market and obtain the expected market share of shipping talents, the key is that the quality of shipping talents must meet the demand standards of the international shipping talent market. The national education after basic education in China can be divided into subject education and vocational education. Disciplinary education includes junior college, undergraduate, and graduate students, and is based on the subject knowledge system to cultivate knowledge and engineering research-oriented talents. Vocational education includes technical workers, vocational schools, vocational colleges, and applied technology graduate students, with a vocational work process system as the behavioral system to cultivate skilled talents.

At present, most vocational teachers majoring in navigation can basically master some commonly used teaching tools, such as PPT, drawing tools, excel, love editing and other commonly used software, and can edit text, images, videos, and data. However, their abilities in deeper development, such as secondary processing of teaching videos, independent courseware development, and webpage production, are relatively weak. In the current copyright protected online environment, targeted animations or videos collected online often require payment or downloading without further processing to make them more suitable for classroom needs, which has also become one of the reasons restricting teachers' TK ability.

At present, the country is vigorously promoting the implementation of the "study in China plan", especially after the implementation of the "the Belt and Road" strategy, China has recruited more and more students from countries along the "the Belt and Road", and maritime vocational education is no exception. In fact, the new model of Sino foreign cooperative education mentioned earlier allows students to study in China as international students after passing language tests. The other is to directly recruit post-secondary or equivalent graduates from countries along the "the Belt and Road" to study in China. Similarly, in the first year of learning Chinese, in the second and third years of learning professional knowledge and skills. Conducting education for international students not only allows students to learn professional knowledge and operational skills in navigation, but also enables them to better understand China, become knowledgeable and friendly talents, and serve the country's grand diplomatic strategy.

Most students who study navigation are farmers from poor or even impoverished areas. With vocational education and training, they can find decent jobs in the international labor market. In short, as long as a vocational education concept that is suitable for the market economy is constructed, the graduates cultivated will definitely be welcomed by

enterprises and society and will remain invincible in the fiercely competitive job market. China's maritime education has a history of over 140 years and has formed a relatively complete maritime education and training system, including maritime subject education, maritime vocational education, and maritime vocational training. The education level of navigation discipline includes college, undergraduate, and graduate students. The level of maritime vocational education includes technical workers, vocational schools, vocational colleges, etc. Maritime vocational training is a nonacademic education that provides vocational training for in-service crew members to update their knowledge and improve their abilities.

3. CONCLUSION

China's accession to the WTO provides a good opportunity for maritime vocational education. It is necessary to carefully analyze the demand and characteristics of maritime talents in the market economy environment and create a talent training model that meets this demand. Only in this way can our graduates stand invincible in international competition. Set up training institutions or overseas branches in countries along the "the Belt and Road", explore new models of Chinese foreign cooperation in running schools, and vigorously develop education for overseas students. On the one hand, it can serve the country's grand strategy and train the specialized talents needed by the country to promote the "the Belt and Road" strategy; On the other hand, through continuous practice, the internationalization ability of maritime vocational colleges is also constantly improving, and the status of China's maritime vocational education in the international community will also continue to improve.

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Research on the Teaching Reform Path of Navigation Major in Vocational Colleges under the Background of the New Era

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Abstract: After the international financial crisis and the official implementation of the manila amendment to the international convention on standards for training, certification, and watchkeeping, the demand for maritime talents in the shipping talent market has undergone profound changes. The reform of the training plan for maritime talents must consider the particularity of maritime vocational education, optimize course content and system, improve teaching methods, strengthen practical teaching, and build a "dual teacher" team with a reasonable structure and solid professional skills. Through practical research, the aim is to solve the current problems faced in the cultivation of shipping talents in China, and to provide experience and reference for the cultivation of "skilled and educated" "maritime craftsmen" in maritime vocational colleges.

Keywords: Teaching Reform Path, Navigation Major, Vocational Colleges, New Era

1. INTRODUCTION

As the highland of vocational education, vocational colleges should highlight the characteristics of cultural education when orderly promoting the development of various undertakings in the school, take service and moral education as the foundation, scientifically construct a long-term mechanism for cultural education, promote cultural education with a high degree of cultural consciousness, strengthen the linkage between politics, administration, schools, and enterprises, and promote the construction of cultural education with the school's own characteristics. As a vocational college in the field of transportation, Guangdong Jiaotong Vocational and Technical College has distinct educational characteristics and a significant influence on navigation within the province. Strengthening the research on collaborative education of shipping culture and exploring the cultivation of "navigation craftsmen" from the "four dimensions" of practical exploration has significant practical significance. Vocational colleges have elevated the cultivation of national craftsmen to a national strategy.

Maritime vocational colleges shoulder the mission of building a shipping talent team for the national strategy of serving the "the Belt and Road" construction and realizing a maritime power. At present, there is a significant gap between the professionalism, professional ethics, practical skills, English proficiency, adaptability, and management abilities of employed seafarers and the job requirements. In the stage of maritime vocational education, it is necessary to strengthen the cultivation of craftsmanship spirit to enhance the comprehensive quality of maritime talents and enhance the international competitiveness of China's maritime talents.

The implementation of the Manila Amendment to the STCW Convention will have a significant and far-reaching impact on maritime education in China. Maritime vocational colleges should have a proactive awareness in crew training, carefully study the impact of changes in conventions and regulations on future shipping development, strengthen the construction of teaching staff and textbooks, comprehensively adjust existing teaching plans, syllabuses, and curriculum settings, enrich teaching equipment, carry out new training projects, and strengthen the cultivation of students' comprehensive qualities, To ensure that the reform and innovation of courses in vocational maritime colleges truly meet the needs of modern maritime technology development, and to cultivate high-quality maritime professionals who meet the requirements of the convention and have strong international competitiveness.

Create a distinctive campus shipping culture and build a unique brand activity system for shipping culture. Thirdly, establish new practice bases both on campus and off campus based on the characteristics and needs of shipping enterprises and industries. Fourthly, systematically tap into alumni resources and establish a normalized alumni collaborative communication platform. The fifth is to establish an intercollegiate teacher-student collaborative exchange platform using the shipping industry summer camp activities as a carrier; Sixth, offering general courses related to navigation and strengthening the popularization of navigation education. Seventh, through cultivation and practice, the passing rate of professional student crew qualification certificates has significantly increased, and the employment quality of professional graduates has significantly improved. Eight is to cultivate a group of "maritime craftsmen" who are suitable for the development of the industry through three years of systematic cultivation in vocational colleges. Due to factors such as cultural discrimination, social changes, deficiencies in the education system, improper educational models, and inadequate integration of work and learning, the cultivation of craftsmanship spirit in higher vocational education in China is lacking.

2. THE PROPOSED METHODOLOGY

2.1 The Necessity of Reforming the Training Mode for Maritime Talents in Vocational Colleges

With the implementation of the "the Belt and Road Initiative" and the maritime power, a strong shipping talent team is an indispensable support force for achieving a maritime power. In recent years, due to changes in material life and population structure, there has been a serious loss of navigation professionals, causing instability in the crew. However, there is a significant gap between the professional dedication and ethics, practical operational skills, English communication skills, and the ability to handle complex problems and management abilities of graduates in the maritime industry and the requirements of shipping enterprises. With the continuous application of modern technology in ships and the continuous revision of international maritime conventions, Higher requirements have been put forward for the comprehensive quality of crew members. The knowledge and skills learned and trained in various professional courses should be based on the requirements of conventions and regulations, higher than the actual needs of ship navigation and management at present, especially considering the application trends of new knowledge and technologies in future ships, such as electronic navigation, digital navigation, ship enlargement and modernization, etc., Enable students to adapt to the requirements of advanced ships for pilots in a timely manner after graduation

Carry out various forms of maritime campus cultural activities and create distinctive campus maritime cultural brand activities. One is to hold a water sport meet and carry out maritime rescue "triathlon", rope skimming, tying knots, and inserting triple ropes and other navigation skills competitions, showcasing professional students' "survival at sea" and "escape at sea" skills, showcasing seafarers' demeanor, and enhancing the popularization and demonstration role of basic navigation skills. The second is to hold a ship model making competition to encourage professional students to understand the hull structure through hands-on production, strengthen the learning of professional theoretical knowledge, and reduce the boredom in learning hull knowledge.

The third is to hold a celebration event for Seafarers' Day, carry out spiritual education for students majoring in navigation, enhance the recognition and understanding of seafarers and the shipping industry from all sectors of society, and enhance the sense of professional belonging of the seafarer community. The fourth is to popularize the scientific and cultural knowledge of navigation, regularly hold themed lectures, organize professional students to participate in provincial-level maritime high-level forums and navigation forums, and enhance their thirst for knowledge about navigation. China's maritime education strictly complies with the requirements of the STCW Convention, and the trained maritime talents can fully meet international standards in terms of technical level. However, due to cultural differences, language limitations, social environment and other constraints, the international recognition of China's shipping market and individual crew members is not high.

Under the premise of equal distribution of professional skills, professional competence becomes the main factor restricting the development level of crew members. The rigorous and serious professional spirit, the dedication to excellence, and the innovative spirit of pursuing excellence that are included in the "craftsmanship spirit" are the key factors to measure professional competence. Able to approach repetitive work with rigor, study hard in the face of challenging tasks, and always rely on rationality, beliefs, and morality to regulate one's own behavior. For example, the "Navigation" exam subjects determined by the Maritime Safety Administration are divided into four courses based on the systematic nature of navigation education, teaching content, sequence of knowledge learning, and semester arrangement: "Fundamentals of Navigation", "Navigation Instruments", "Navigation Methods", and "Navigation Meteorology and Oceanography".

2.2 Discussion on the Reform of Talent Training Mode in Maritime Vocational Education under the New Situation

The content of deck equipment and ship structure is consistent with the division of competency standard functional blocks in the new crew competency examination outline of the maritime safety administration and the convention. The content of ship repair is placed in the "Ship management" examination module, and the construction of vehicles, helmets, and anchor equipment is directly placed in the "ship handling and collision avoidance" examination module; include basic knowledge of ship structure, piping, lifting equipment, and cargo warehouse equipment in the exam module of ship structure and freight transport.

Pay attention to providing students with practical opportunities, intersperse practical links during the learning period, equip practical guidance teachers, and strengthen the full integration of practical content and professional theory. Give full play to the functions of the campus practical training base and use the campus practical training base as the competition site for navigation skills competitions and science popularization knowledge explanation competitions, to enhance the skill proficiency of professional students in an intuitive way and promote learning through competitions. Fully leverage the collaborative educational role of off campus practical teaching bases, arrange teachers and students to participate in practical teaching activities in batches, carry out ship classes, move the classes to ships, and jointly build a "dual teacher" teaching team with the school and enterprise that "teachers are crew members, and crew members are teachers", forming a mechanism where practical skills courses and on-the-job internships are mainly taught by part-time teachers, achieving deep integration between schools and enterprises, and strengthening the navigation cognitive internships of vocational students, comprehensively promote the internship of professional students as crew members and improve their practical skills.

The third is to establish an intercollegiate teacher-student collaborative exchange platform, aiming to spread maritime culture among young people and enhance their feelings and identification with the maritime profession and culture. Exploring and practicing the "transmission, assistance, and guidance" of youth (college students) - youth (primary and secondary school students) to continuously strive to achieve the Chinese Dream, the Dream of a Strong Country, and the Ocean Dream, comprehensively enhancing the spirit of unity and cooperation, legal and environmental awareness, knowledge of shipping culture, and the spirit of voluntary service of "dedication, friendship, mutual assistance, and progress" among professional students, and cultivating them to become high-quality shipping talents with "skills and culture".

Organize and carry out summer social practice activities for Guangdong university student party members with the theme of shipping culture, to enhance professional students' high awareness and understanding of shipping culture. The purpose of strengthening industry awareness is to cultivate students' professional ethics and literacy, help them strengthen the guiding role of value orientation in the practical process, and help them better comply with industry standards in their work. For education itself, cultivating technical and skilled talents with the spirit of craftsmanship in the new era is the mission of vocational colleges, which is conducive to regulating talent cultivation behavior, avoiding the problem of disconnection between goals, content, and process in practical cultivation, and promoting the integration and mutual promotion of craftsmanship spirit cultivation and skill training. This educational philosophy is also relatively close to the expectations of industry enterprises for talent cultivation in vocational colleges, which is conducive to promoting the integration of industry and education, and innovating talent cultivation models.

3. CONCLUSION

The reform of vocational education in the field of navigation is imperative, especially in the face of the financial crisis and the changes in the requirements of shipping companies for navigation talents after the implementation of the Manila Amendment to the STCW convention. As a university that cultivates highly skilled navigation professionals, it must closely follow the changes in talent demand in the shipping market, adjust teaching plans and change teaching and training models in a timely manner, only then can we cultivate high-level maritime talents with comprehensive qualities that meet the needs of enterprises and the market.

4. ACKNOWLEDGEMENT

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Analyzing the Explosive Behavior of a Buckling Restrained Brace Frame Made of Shape Memory Alloy by Using Finite Element Method

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Abstract: In this study, we investigate the behavior of a buckling restrained brace frame made of a shape memory alloy when subjected to explosive loads. To accomplish this, we initially loaded a conventional braced frame with a span of 6 meters and a height of 3 meters with explosive forces. The simulation and validation processes will be conducted using the ABAQUS software. After validating the results, we examine eight additional models using ABAQUS software. These models are divided into four groups. In each group, the first sample is constructed from plain steel alloy, while the second sample is made from a shape memory alloy with identical specifications to the first sample. In the first group, the explosive load is set at 10 kilograms, in the second group, it is 30 kilograms, in the third group, it is 50 kilograms, and in the final group, the mass of the explosive material is 100 kilograms. The analysis results reveal that as the amount of explosive material increases, displacement and stress in the samples rise. The displacement increases significantly in the last set of samples (with 100 kilograms of explosive material). By incorporating shape memory alloy into the samples, especially with lower quantities of explosive material, it is possible to partially restore the structure to its initial state, thereby reducing the severity of damage inflicted upon it. Even with higher amounts of explosive material, a substantial level of restoration can be achieved, further minimizing structural damage.

Keywords: Buckling Restrained Brace Frame (BRBF), Shape Memory Alloy, Explosive loading, FEA, Abaqus

1. INTRODUCTION

In various incidents worldwide, the occurrence of attacks on critical structures has led to a special focus on explosive loads in recent years. Understanding the proper behavior of structural systems against lateral loads such as earthquakes, explosive forces, etc., can assist us in designing structures more effectively. Buckling restrained braces (BRBs) are one of the most common lateral load-resisting systems, and their major weakness is related to the buckling of the compressive member, resulting in a reduction in load-carrying capacity. Using non-buckling BRBs is one of the solutions to address this issue. To withstand lateral forces on structures over the past years, various solutions, such as shear walls, converging and diverging braces, and more, have been introduced. As mentioned, due to a significant flaw in bracing systems that involve buckling under compressive loads, further studies were conducted to address this issue, particularly focusing on alleviating compressive buckling phenomena. In addition, design flaws, and uncertain behavior of braces after seismic and explosive events, led to further research and the development of a new type of BRB known as buckling restrained brace frames or BRBFs.

Buckling restrained brace frames consist of a slender steel core to resist axial loads and their ductile behavior with high stability is ensured by the yielding section. Despite the higher impact resilience of isotropic materials like steel alloys, composite materials demonstrate superior strength when subjected to tension or compression loading. Notably, concrete, while categorized as a brittle material, displays heightened resistance to buckling when contrasted with various other composite materials, such as bone [1-2]. A continuous concrete jacket surrounds the steel core to prevent its buckling under compressive forces. A small gap, approximately a few millimeters (typically between 1 to 5 millimeters), separates the steel core and the jacket to prevent force transfer between them, effectively preventing buckling of the metal core during cyclic loading. There are various types of buckling restrained brace technologies based on different configurations of the steel core and concrete-filled jacket to achieve high performance in these braces. One of them is buckling restrained braces with a concrete-filled steel jacket, while another is all-steel buckling restrained braces [3]. These days the most important factor in designing the structures is their stability under the loads. To address this issue some researchers are working on different ways and methods to increase the reliability of structures under the loads. For instance, Mohammad Ali et al [4] This research investigates the buckling behavior of elliptical CDFST columns using transverse reinforcements in the outer tube. The study simulates an elliptical column and is subjected to compressive loading using Abaqus Software. The results show an increase in load-bearing capacity with the highest compressive strength in columns using transverse reinforcements, which enhance the stability of columns under loads. Nazeryan and Feizbahr simulated the seismic performance of Composite reinforced concrete and steel (RCS) joints under cyclic and uniform loads using ABAQUS finite element software. A modified model was presented, increasing capacity, and exhibiting more stable behavior, enhancing the system's appeal [5]. Ferdosi and Porbashiri investigated the material properties of carbon nanotubes to use them as a composite to reinforce the structures. They employed the novelty method called the asymptotic homogenization method [6].

Buckling restrained braces, despite their excellent resistance to buckling, suffer from issues such as deformations and residual strains after earthquake loading [7]. Various solutions to mitigate this weakness have been proposed in different studies, including geometric reshaping, sandwiching, the use of composite materials, and more. One of the approaches that has been recently employed to restore materials to their

original state after plastic deformation is the use of smart materials that can return to their initial state after undergoing plastic deformation. Therefore, considering the need for significant deformations that occur during explosive loading in structures and the requirement for returning to the original state in buckling restrained braces, this research focuses on the application of smart materials in buckling restrained braces using ABAQUS software. The impact of using these materials in braces and the degree of return to the initial state after explosive loading will be investigated.

At a large and macroscopic scale, superelastic shape memory materials exhibit a hysteresis behavior similar to the diagram below. This hysteresis curve indicates the restoration of the original shape and the energy dissipation properties of these materials. Total axial strains of more than 1 to 3 percent and a significant portion of axial strains with values greater than 3 percent have the capability to return (Figure 1). The presence of these unique properties in shape memory materials has led to the diversification of their applications in various fields over the past two decades [8-12]. In addition, as Zadeh et al. [13] conclude, investigating concrete recycling within the construction industry is imperative, as the industry faces historical environmental challenges. It must adapt and adopt sustainable practices to mitigate its impact on the environment and address concerns related to resource depletion, waste generation, and global warming. The incorporation of the 3R principles of reduce, reuse, and recycle presents a potent means to curtail waste generation in the construction industry, with a particular focus on addressing concrete and demolition waste, given concrete's widespread use in construction. Furthermore, the adoption of life cycle design principles not only underscores the significance of recycling but also promotes the establishment of a closed-loop system, synergistically contributing to fostering a more sustainable construction industry and effectively addressing the complexities posed by environmental and resource-related concerns.

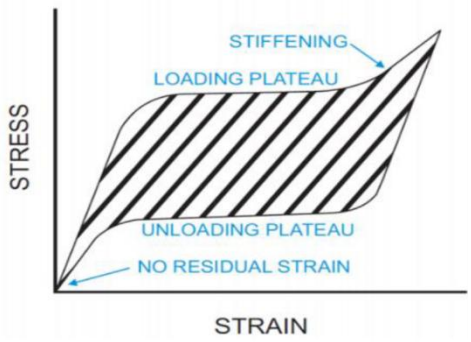

Figure 1. Ideal Stress-Strain Behavior of Superelastic Shape Memory Alloy [9]

Buckling restrained braces (BRBs), which were first used in Japan in 1989, are now widely employed worldwide as flexible, earthquake-resistant components in earthquake-prone regions such as Japan, the United States, Taiwan, China, Turkey, and New Zealand [14]. Alborzi et al. [15], conducted a numerical comparison of the impact of conventional and composite buckling restrained braces on seismic protection of short and mid-rise steel buildings. They stated that buckling restrained braces are a specific type of bracing system that exhibits acceptable behavior in energy dissipation without buckling under compressive forces. However, the presence of residual deformations during strong ground motions in these braces is significant, arising from the low post-yield stiffness in these systems. New systems, referred to as composite buckling restrained braces, offer better performance against seismic loads, and in this research, these systems will be compared alongside conventional systems. Feng et al. [16], focused on designing damage control in buckling restrained braces using masonry walls based on the displacement response spectrum in the elastic region. They aimed to investigate the seismic design and performance of buckling restrained braces using masonry walls. They also mentioned that the reason for using masonry walls is to reduce drift in frames equipped with buckling restrained braces. Fayeq et al. [17] investigated the seismic performance of frames with buckling restrained braces with changes in beam-to-column connections. Kiggins et al. [18] examined residual drift in frames with buckling restrained braces as a dual system. They stated that frames with buckling restrained braces exhibit very good behavior in energy dissipation. However, the low post-yield stiffness in these braces results in significant drift in the structure. Wan and Choi [19] focused on seismic design, nonlinear analysis, and performance assessment of frames with buckling restrained braces. They mentioned that buckling restrained braces have been widely used in high seismic regions recently, attributed to their unique features compared to converging braces. Matthew et al. [20] investigated earthquake collapse prevention in new buckling restrained braces using the ASCR41 code. Mahmoudi and Zaree [21] evaluated displacement enhancement factors in frames with converging and buckling restrained braces. Chung and Chen [22] conducted tests and finite element analysis on sandwich buckling restrained braces. They proposed a new type of buckling restrained braces and conducted tests and finite element analysis on them. From the study done by (Khanal, 2020; Khanal et al., 2023), a numerical analogy can be performed on implementing nonlinear one-dimensional and three-dimensional buckling equations in the material behavior using the software MATLAB and ANSYS APDL. This analogy technique helps to validate the real buckling behavior using a numerical approach [23-24]. Zhao et al. [25] examined corner frictional connections to enhance the seismic performance of buckling restrained braces through a subset of tests. Wanga et al. [26] investigated the collapse capacity of reinforced concrete bridges strengthened with buckling restrained braces. They focused on bridges' collapse capacity and failure modes strengthened with buckling restrained braces in columns. Esfandiari and Soleimani [27] conducted laboratory tests on buckling restrained braces with an optimized one percent of polypropylene and composite fibers in their microstructure under seismic loads. Vaismoradi et al. [28] evaluated the collapse risk of frames with buckling restrained braces during earthquakes and their aftershocks. Jia et al. [29] examined the experimental and cyclic behavior of composite frames with buckling restrained braces.

2. RESEARCH METHOD

This research is divided into two parts, simulating the application of shape memory alloys. The first part involves validating the results based on a reference paper [30]. Initially, a single-span, single-story frame with specifications from this reference paper is simulated, and the simulation process is validated using ABAQUS software. In the second step, the main models of this research, consisting of 8 models with similar specifications to the validation case, are simulated in ABAQUS software. The explosive load values are varied among 10-, 30-, 50-, and 100-kilograms equivalent to TNT explosive material. These models are analyzed in both

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simple frames and frames with shape memory alloys, and the results are extracted and compared. The details of these models are presented in Table 1 within this article.

Table 1. Specifications of the analyzed samples in this paper [30].

Model	Name	Amount of explosive charge TNT (kg)
Validation model	-	Explosive-induced compressive load in accordance with the reference paper.
Model No.1	plain steel	10
Model No.2	Shape Memory Alloy	10
Model No.3	plain steel	30
Model No.4	Shape Memory Alloy	30
Model No.5	plain steel	50
Model No.6	Shape Memory Alloy	50
Model No.7	plain steel	100
Model No.8	Shape Memory Alloy	100

2.1 Simulation Geometry

The geometry of the buckling restrained brace frame is extracted from the reference paper [30] and is consistent for all 8 other models analyzed in this research. For this purpose, a single-span frame with a buckling restrained brace under explosive loading is modeled in the ABAQUS software. This frame has a height of 3 meters and a span length of 6 meters, incorporating a buckling restrained brace. The frame consists of two columns and one beam on top, connected to the structure by a series of brace stiffeners. The beam used in the analysis is of type W1835, and the columns are of type W1468. The geometry of the beam and column used in the analyzed structure is presented in Figure 2.

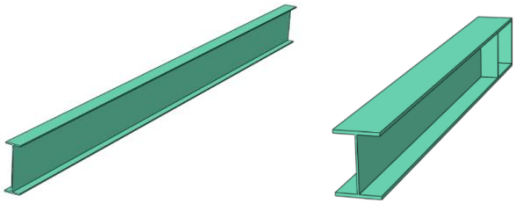

Figure 2. Geometry of the beam and column used in the validation analysis and other models of the paper. (Beam on the left, column on the right)

The beam and column used in the analysis are of the W type, and the cross-sectional parameters and specifications for the beam and column are presented in Figure 3 and Table 2, respectively.

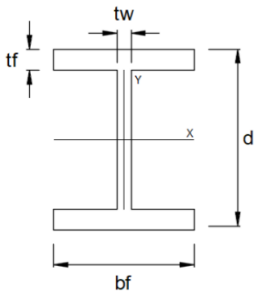

Figure 3. Cross-Sectional Parameters of the Beam and Column Used in the Validation Model [30].

The next component used in the modeling is the buckling restrained brace (BRB), which consists of a steel core and a concrete cover. The specifications and dimensions of the core and cover are presented in Figure 4.

Table 2. Parameters Used for the Cross-Section of the Beam and Column [30].

Type	*tf*	*tw*	*bf*	*d*
Beam	10.8	7.6	152.4	449.6
Column	18.3	10.5	254.9	356.6

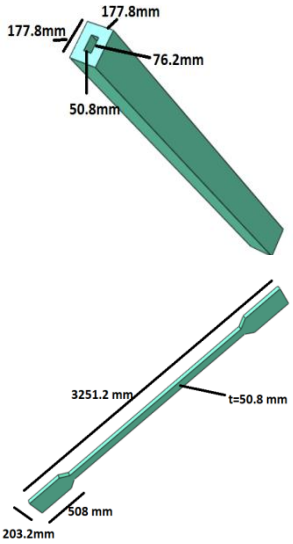

Figure 4. The geometry of the steel core and concrete cover of the buckling restrained brace used in the models.

The steel used for the beams and columns in the validation models and models with regular steel is A992, while the steel used for other sections of the models is A36. Additionally, the concrete used for the cover of the buckling restrained braces has a density of 2400 kilograms per cubic meter and a maximum compressive strength of 31 MPa. These material properties were defined using the CDP model. The elastic and plastic properties of these steels are presented in Table 3.

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Table 3. Properties of steels used in the validation section [30].

Type of steel	A992	A36
Ultimate Tensile Strength (MPa)	448	399
Yield Strength (MPa)	344	248
Poisson's ration	0.3	0.3
Young's Modulus (MPa)	200	200
Density (Kg/m^3)	7850	7850

Superelastic properties have been used in the ABAQUS software for simulating shape memory alloy materials employed in the nuclear steel moment frame section. This feature in the material library of the software allows for accurate simulation of these materials. Shape-memory materials possess superelastic properties, which means their elastic region is much broader than that of common materials like steel. Typically, steel undergoes plastic deformation at strains exceeding one percent, whereas superelastic materials can have elastic deformations of up to 8 percent. The general stress-strain behavior of superelastic materials is presented in Figure 5.

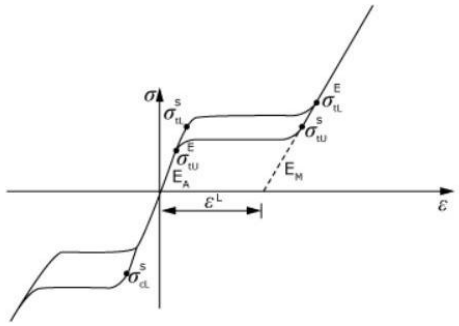

Figure 5. Stress-Strain Curve of Superelastic or Shape-Memory Materials [31].

In this figure, A represents the austenite phase, and M represents the martensite phase. As observed in the figure, for defining smart materials in general within the ABAQUS software, you need the elastic modulus of austenite and martensite, the Poisson's ratio of austenite and martensite, the transformation strain, loading and unloading stress points on the first and second slopes. These properties for a superelastic material have been extracted from the reference article [31], and these coefficients are presented in Table 4.

Table 4. Required Properties for Simulating shape memory alloy Materials [31].

Young's Modulus of Martensite (GPa)	50
Young's Modulus of Austenite (GPa)	37
Poisson's Ratio	0.35
Transformation Strain L (%) ε	5.5
Martensitic Transformation Starting Stress (MPa)	400
Martensitic Transformation Ending Stress (MPa)	650
Austenitic Transformation Starting Stress (MPa)	350
Austenitic Transformation Ending Stress (MPa)	80

2.2 Assembly of the Validation Model

After defining the material properties in the previous section, in this section, the model has been assembled based on the specifications outlined in the reference article. The assembly model is presented in Figure 6. This assembly geometry remains consistent for all models in this article, with variations only in the explosive load and the type of materials in the central core of the moment-resisting frames.

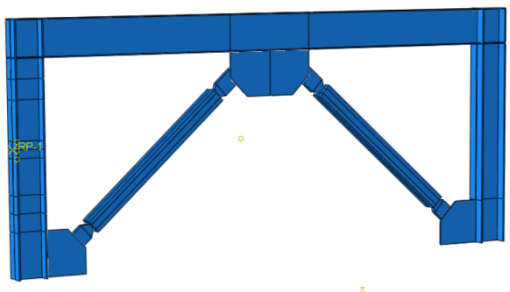

Figure 6. Assembly Model for the Validation Sample.

2.3 Constraints for the Validation Model

The connection of beams to columns has been achieved using coupling constraints. Additionally, to ensure the model's integrity, constraints such as tie constraints have been utilized for connecting the moment-resisting frame to the strengthening plates, the central core section, the concrete cover, and other parts of the model. For this purpose, as shown in Figure 7, coupling constraints have been selected for the beam-to-column connections. The regions where tie constraints have been applied are also presented in Figures 8 to 10.

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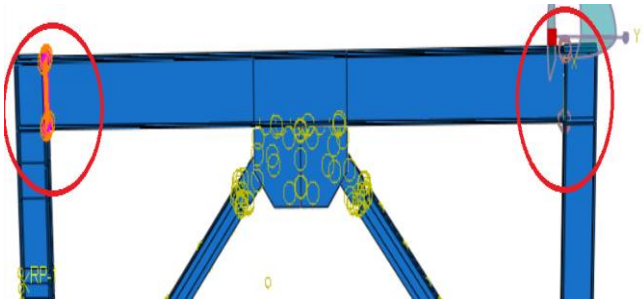

Figure 7. Beam-to-Column Connection with Coupling Constraint.

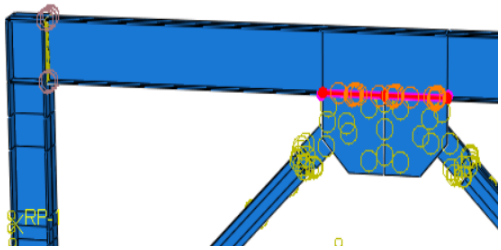

Figure 8. Connection of Central Reinforcer to the Central Beam with Tie Constraint.

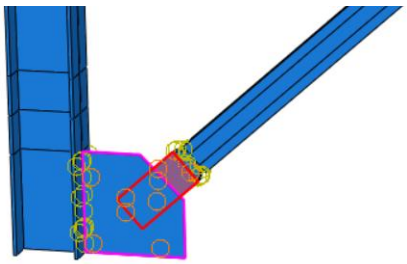

Figure 9. Connection of Reinforcer to the Moment-Resisting Frame with Tie Constraint.

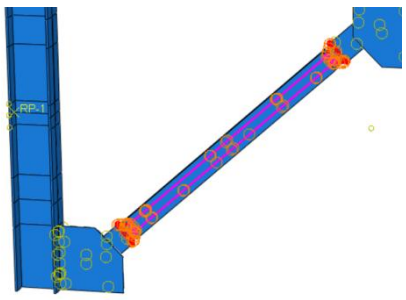

Figure 10. Connection of Steel Central Core and Concrete Cover of the Buckling-Restrained Moment Frame with Tie Constraint.

2.4 Loading and Boundary Conditions

Since the lower portions of the structure are connected to the ground, all degrees of freedom for the lower parts of the structure are constrained, as shown in Figure 11. These boundary conditions remain consistent for both the validation model and the other models in this article.

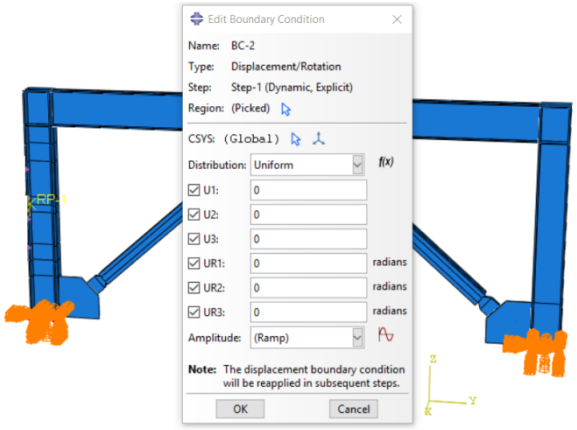

Figure 11. Constrained Lower Portions of the Validation Model.

After constraining the lower portions of the structure, the explosive load must be applied to the structure. Following the proposed approach in the reference article [30], the explosive load is applied as an extremely high-pressure load over a very short duration, as illustrated in Figure 12, to the left side of the structure as depicted in Figure 13. The pressure load increases linearly from zero to its maximum value of 58 bars over a duration of 22 milliseconds. In the other models in this article (Models 1 to 8), the explosive load is applied to the structure at a distance of 3 meters from the structure using the Conweb property in the ABAQUS software, following the pattern shown in Figure 12, with values of 10, 30, 50, and 100 kilograms of TNT.

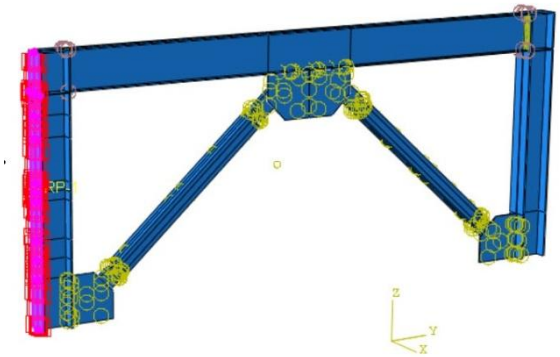

Figure 12. Explosion Initiation Point and Initial Impact Area of the Blast Wave with the Structure.

2.5 Meshing of Models

For analysis, the models are meshed with a 2-centimeter discretization, and the C3D8R element type is used for meshing. The C3D8R element is a 3D 8-node element capable of modeling various types of nonlinear behaviors resulting from the explosion. The meshed model is presented in Figure 13.

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Figure 13. Meshed Model for the Validation Model.

3. DISCUSSION AND RESULTS

The results related to the validation model and other results obtained from the analysis of the 8 simulated models in this section will be presented. First, the results of the validation model will be provided, followed by the results of the analyzed models.

3.1 Results Related to the Validation Model

In this section, the results related to the validation model will be presented. The validation model, as previously described, was a single-span frame with a height of 3 meters and a span of 6 meters, equipped with a buckling-restrained moment frame and subjected to explosive loading. The explosive load was applied as a 58-bar pressure load over a duration of 22 milliseconds to the left side of the structure. The maximum displacement of the left side of the structure under this loading was extracted from ABAQUS software, and it is compared with the results presented in the reference article [30] in Figure 14.

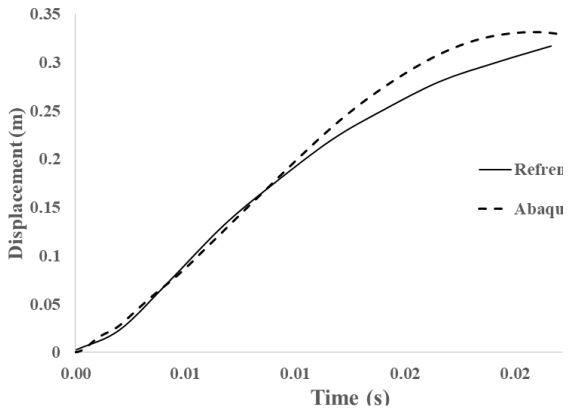
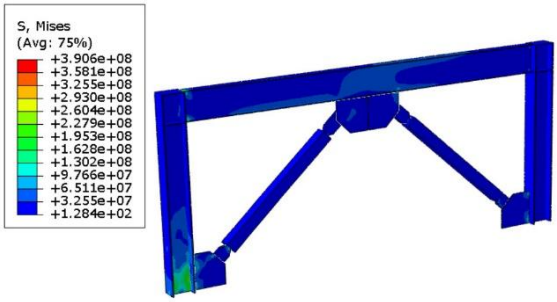


Figure 14. Comparison of the Displacement of the Left Column of the Model with the Results Presented in Reference [30].

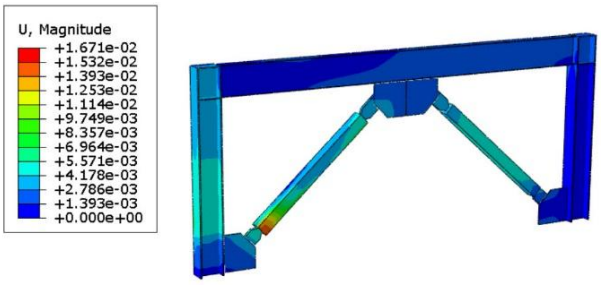
As observed in Figure 14, the displacement of the left column in the analyzed model closely aligns with the displacement of the sample presented in reference [30]. Any slight discrepancies can be attributed to meshing errors and considering that the difference between the two samples is less than 5 percent, the results are considered **acceptable** with good accuracy.

3-2. Presentation of results related to Model No.1 (plain steel with 10-kilogram TNT).

In this model, as indicated in its title, the amount of explosive material was 10 kilograms, and the blast distance was 3 meters. The stress and displacement graph for this sample is presented in Figure 15.



(a)



(b)

Figure 15. Displacement and Stress in Model No.1 (a) Stress, (b) displacement.

As shown in Figure 15, the explosive loading resulting from a 10-kilogram TNT explosion has had a significant impact on the structure. Although the maximum stress in the structure is approximately 390 MPa, most areas are in the blue region, indicating that they experienced lower stress levels. Only the support region of the left column is shown in green, where stress levels range from 260 to 290 MPa in the structure. In this region, even plain steel is expected to return to its initial state and undergo minimal deformation since the stress is below the yield strength of the steel material.

The maximum displacement in the structure occurs in the concrete shell section, measuring 16 millimeters. In the steel sections of the structure, the maximum displacement is 8 millimeters at the end of the analysis. The reason for not returning to the initial state after loading in the system can be attributed to the failure of the concrete shell and the impossibility of returning to the initial state in the bracing elements due to the interaction between the steel and concrete components.

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3-3. Presentation of Results in Model No.2 (Shape Memory Alloy with 10-Kilogram TNT)

In this section, conditions like model No.2 were applied to the structure, with the only difference being the use of a smart alloy instead of plain steel. The stress and displacement contour plot in the structure is presented in Figure 16.

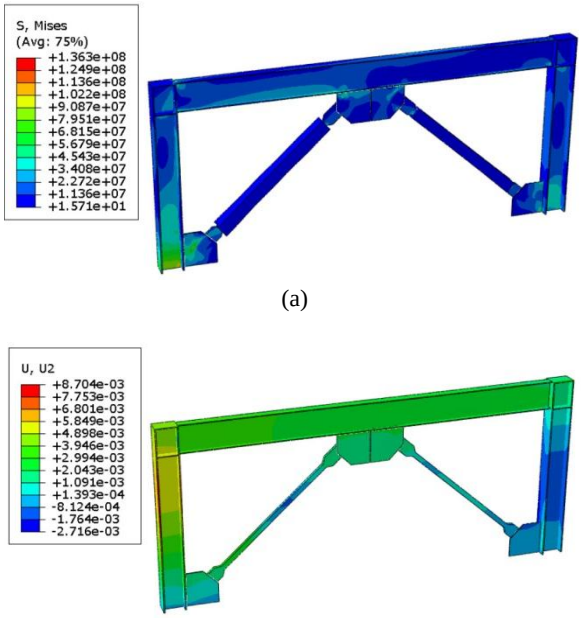

Figure 16. Displacement and Stress in Model No.2 (a) Stress, (b) displacement.

As shown in Figure 16, the maximum stress in the structure at the end of the analysis is 136 MPa, which is much lower compared to the regular sample. This means that the structure has been able to recover itself, reducing the final stresses in the component. The displacement value in the sample at the end of the analysis is 7.8 millimeters, which is equal to the displacement in model No.1, which was without shape memory alloys. The reason for this is that the explosive load couldn't push the structure into the plastic deformation zone, and it remained within the elastic range. Therefore, in both models, the displacement value at the end of the analysis is almost equal. However, it is expected that with an increase in the explosive load in other models, the difference between these two models will become more pronounced.

3-4. Presentation of Results in Model No.3 (Plain Steel with 30-Kilogram TNT)

In this section, the results related to model No.3 are presented. In this model, ordinary steel with the properties of the steel model for validation has been used throughout the structure, and an explosive load of 30 kilograms at a distance of 3 meters from the structure has been applied. The stress and displacement contour in this model is presented in Figure 17.

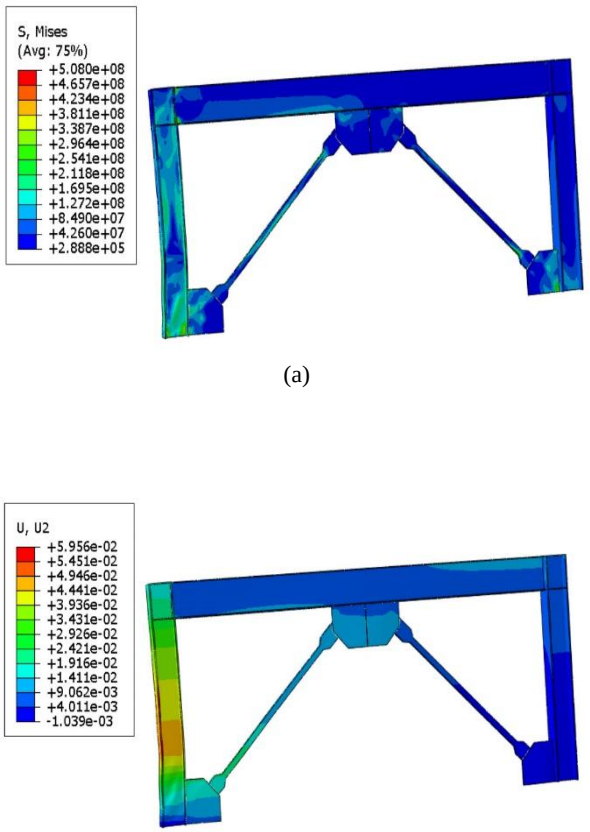

Figure 17. Displacement and Stress in Model No.3 (a) Stress, (b) displacement.

As seen in Figure 17, the maximum stress in the model has exceeded the plastic limit and reached a value of 508 MPa. With this stress, it is expected that the structure undergoes more deformation compared to model number 1. Continuing with the contour plot of displacement in model number 3, as observed in the figure, the displacement in the structure, as expected, has increased compared to model number 1 and reached 59 millimeters. The structure was unable to recover itself and entered the plastic region, and this deformation in the structure has remained permanent.

3-5. Presentation of Results in Model No.4 (Shape Memory Alloy with 30-Kilogram TNT)

In this section, the results related to the sample containing a shape memory alloy with a 30-kilogram explosive material will be presented. In this sample, all conditions are identical to Sample No.4, with the only difference being the use of a shape memory alloy instead of plain steel. The results for stress and displacement contour plots in this sample are presented in Figure 18.

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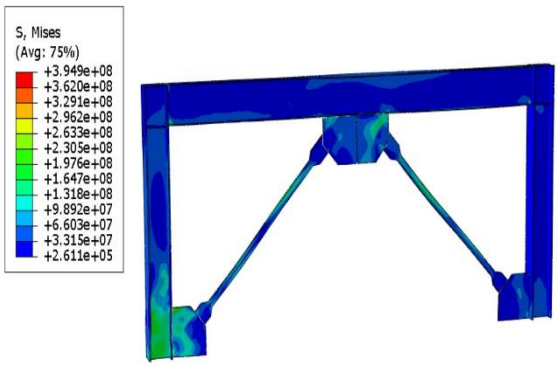
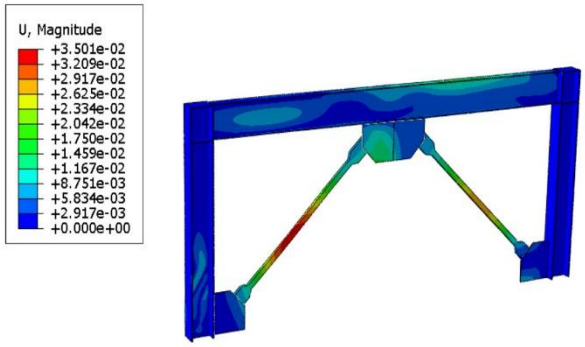


(a)



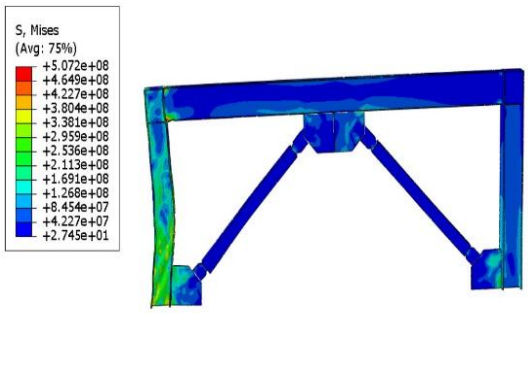
(b)

Figure 18. Displacement and Stress in Model No.4 (a) Stress, (b) displacement.

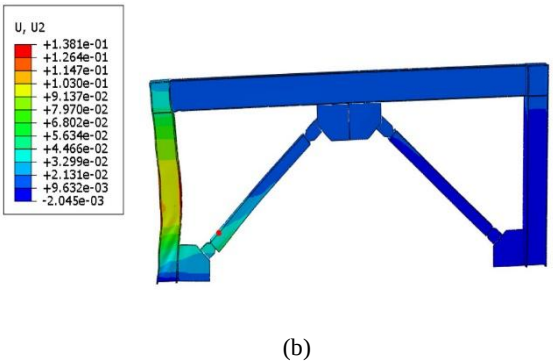
In Figure 18, the highest stress value in the structure is within the green region and is approximately 270 MPa. The stress value of 394 MPa is attributed to modeling error. As seen, the structure, compared to model No. 3, has been able to recover itself to a significant extent. The small remaining stress in the structure is due to non-recovery in regions involving supports and concrete shells in the moment-resisting frames. Overall, the structure has been able to recover almost 70% of its initial state. As shown in the figure (displacement contour), the structure has returned to its initial state in areas other than the moment-resisting frames. Only in the central areas of the moment-resisting frames, where the frame contacts the concrete section, the structure has not fully recovered due to concrete damage and interaction between these two parts of the structure. However, compared to the simple state, it has recovered significantly, with the displacement reducing from 60 millimeters to 35 millimeters in those areas.

3-6. Presentation of Results for Model No. 5 (Plain Steel with 50-Kilogram TNT)

In this section, the results related to model No. 5 are presented. In this model, the explosive load has increased to 50 kilograms, and plain steel has been used for the metallic components. The contour plots for displacement and stress distribution in this model are shown in Figure 19.



(a)



(b)

Figure 19. Displacement and Stress in Model No.5 (a) Stress, (b) displacement.

As observed in Figure 19, the highest stress value in the structure is approximately 507 MPa, and it is in the regions where the beam is connected to the column. In this sample, the stress level has exceeded the elastic limit, and high-stress regions in the structure have increased. It is expected that permanent displacement in the structure will increase.

The distribution of displacement in model No.5, at the end of the analysis, is equal to 138 millimeters, which is 2.5 times higher compared to Model No. 3. This indicates that with an increase in the mass of the explosive material, the displacement in the structure will increase nonlinearly.

3-7. Presentation of Results for Model No. 6 (Shape Memory Alloy with 50-Kilogram TNT)

In this section, the results related to model No. 5 are presented. In this model, the explosive load has increased to 50 kilograms, and plain steel has been used for the metallic components. The contour plots for displacement and stress distribution in this model are shown in Figure 19.

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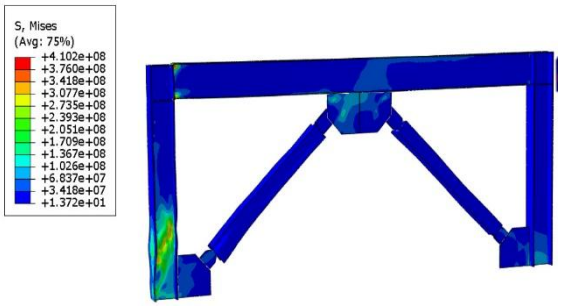
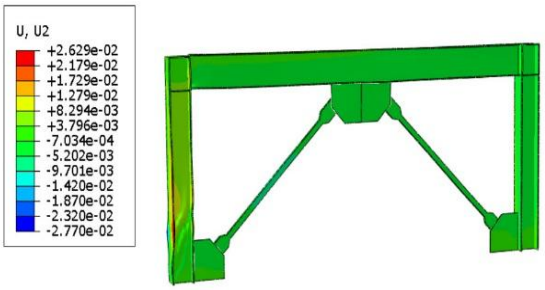


(a)



(b)

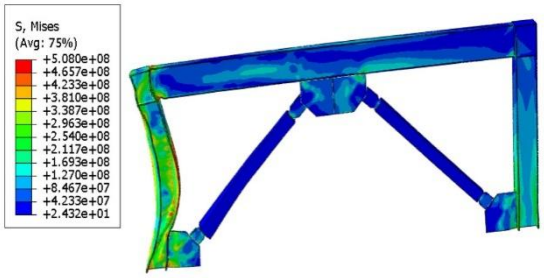
Figure 20. Displacement and Stress Distribution in Model No.6 (a) Stress, (b) displacement.

As observed in Figure 20, the stress value in this sample is approximately 410 MPa. This stress has significantly decreased in the connection regions, and the model has been able to recover itself, reducing the stress level compared to the sample with plain steel.

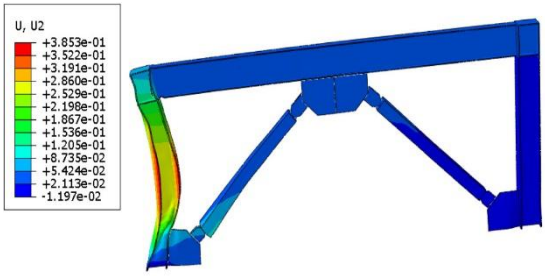
Continuing with the contour plot of displacement distribution in the structure, the maximum displacement value in model No.6 is 26 millimeters, which is a significant improvement compared to model No.5, where it was 138 millimeters. In this case, the structure has almost fully recovered itself, except in the regions where stress was high and slight buckling occurred due to column bending.

3-8. Presentation of Results for Model No.7 (Plain Steel with 100-Kilogram TNT)

In this sample, the mass of the explosive material has increased to 100 kilograms. With this increase, it is expected that both stress and displacement in the sample will significantly increase. The stress contour plot in this sample is presented in Figure 21.



(a)



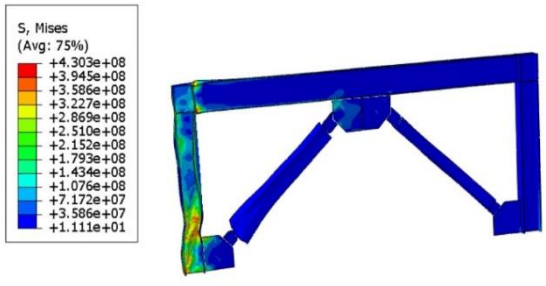
(b)

Figure 21. Displacement and Stress Distribution in Model No.7 (a) Stress, (b) displacement.

As shown in Figure 21, the deformation in the structure is very significant, and high-stress areas have increased. Almost the column on the left side is directly exposed to the explosive load, and the structure has undergone buckling. The maximum displacement in the structure in this model is 385 millimeters, which is a severe displacement and has caused significant bending in the left-side column. If there were no bracing in the system, the structure would have experienced a complete collapse. The results obtained indicate severe damage to the structure under high explosive loads.

3-9. Presentation of Results for Model No.8 (Shape Memory Alloy with 100-Kilogram TNT)

In this section, the results related to model No.8 are presented. In this model, all the conditions are like model No.7, with the only difference being the use of shape memory alloy instead of plain steel in the model. The distribution of displacement and stress in this model is presented in Figure 22.



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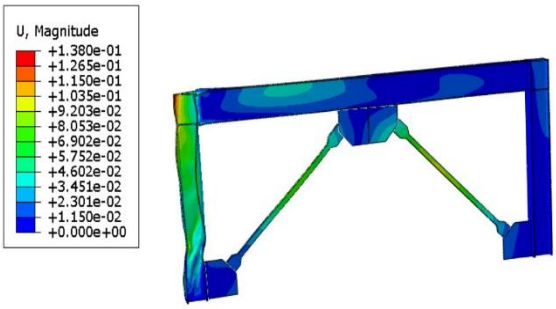
(a)



(b)

Figure 22. Displacement and Stress Distribution in Model No.8 (a) Stress, (b) displacement.

As illustrated in Figure 22, the stress levels in the structure have decreased compared to model No.7, which used plain steel. High-stress areas in the structure have also significantly reduced. In other words, the model has managed to recover itself to some extent and get closer to its initial form.

According to Figure 22, although the explosive load on the structure was very high, and deformations were significant, the structure has been able to recover itself to a large extent. The displacement has decreased from 385 to 138. The reason for not returning to the initial state can be attributed to the bending of columns and interaction with supports and the concrete shell, which has prevented a complete return. However, to a considerable extent, this severe deformation has been reduced.

To summary the obtained results, table 5 is presented. As illustrated on table 5, because of using shape memory alloy material on beams and columns, the applied stress decreased 55, 22, and 19 percent for 10, 30 and 50 kg TNT, respectively. Moreover, deformation dropped to less than half for all of the models. Finally, in model 7, the column of the structure buckled and collapsed due to the explosion, resulting in a displacement of 385 millimeters. In contrast, model 8, which utilized shape memory alloy, reduced the displacement to 138 millimeters, but it couldn't fully recover.

Table 5. The comparison of results for plain steel and shape memory alloy by using FEA.

Model	Name	Amount of explosive charge TNT (kg)	Stress (MPa)	Deformation (mm)
Validation model	-	Explosive-induced compressive load in accordance with the reference paper.	-	-
Model No.1	plain steel	10	290	16
Model No.2	Shape Memory Alloy	10	136	8.7
Model No.3	plain steel	30	508	59
Model No.4	Shape Memory Alloy	30	394	35
Model No.5	plain steel	50	507	138
Model No.6	Shape Memory Alloy	50	410	26
Model No.7	plain steel	100	Collapse	385
Model No.8	Shape Memory Alloy	100	-	138

4. CONCLUSION

This research focuses on investigating the behavior of a moment-resisting frame equipped with shape memory alloy under explosive loads. Initially, a single-span, single-story moment-resisting frame with a 3-meter span and 6-meter height, as described in reference [30], was selected. It was subjected to explosive loading with a pressure load generated by an explosion of 58 times the explosive charge within 22 milliseconds. The maximum displacement on the left side of the structure was extracted and compared with the reference paper's results for validation.

Following validation, eight additional models were analyzed. In all eight models, including the geometry and support conditions, the modeling approach was similar to the validation model. Among these eight models, four had properties similar to the validation model, using ordinary steel, while the other four models used shape memory alloy in

the core of the moment-resisting frame. These eight models were exposed to explosive loads of 10, 30, 50, and 100 kilograms, categorized in pairs.

In the first category, which included models 1 and 2, the explosive load was 10 kilograms. The structure in model 1 did not enter the plastic region and returned to its original state to a significant extent due to its elastic properties. In model 2, which used shape memory alloy, the recovery was even greater. The displacement in both models at the end of the analysis was 8 millimeters, but the stress in model 2 decreased from 290 MPa in model 1 to 138 MPa due to the use of shape memory alloy material.

In the second category, models 3 and 4 were exposed to a 30-kilogram explosive load. The displacement in model 3 at the end of the analysis was 60 millimeters, whereas it was reduced to 35 millimeters in model 4. Additionally, the stress values decreased from 508 to 394 MPa when shape memory alloy material was used.

In the third category, models 5 and 6 were subjected to a 50-kilogram explosive load. The displacement at the end of the analysis for these two models was 138 and 26 millimeters, respectively, and the stress decreased from 507 to 410 MPa, demonstrating the structure's recovery using shape memory alloy.

In the last category, models 7 and 8 faced a 100-kilogram explosive load from an explosive material. In model 7, the column of the structure buckled and collapsed due to the explosion, resulting in a displacement of 385 millimeters. In contrast, model 8, which utilized shape memory alloy, reduced the displacement to 138 millimeters, but it couldn't fully recover.

In conclusion, the findings of this research indicate that the use of shape memory alloy in structures can significantly mitigate the damage caused by explosive loads and restore structures that have undergone substantial deformations to their original state.

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Moisture beyond Hygroscopicity- The Chemist Understanding

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Abstract

In this review paper, hygroscopicity was briefly analyzed within the context of the role water molecules in the air plays in causing moisture. Some material substances that absorb or adsorb water molecules from the air were highlighted, like salts, sucrose, ethanol, sulphuric acid and cellulose fibre. The chemistry origin of hygroscopy was x-rayed through an attempt to explain the polar nature of water and some hygroscopic substances and the important role of hydrogen bonding. While highlighting the disadvantages of hygroscopy in food materials and other raw materials for production.

Key Words: Hygroscopicity, Water Molecule, Salt, Sucrose, Food materials & Chemistry

Introduction

Hygroscopicity is defined as the ability of a substance to absorb moisture from its surroundings.Hygroscopicity, a physical property of a material, it is a measure of how well the material can absorb and release water molecules. Certain materials may expand or deform upon exposure to water molecules. (Wei *et. al.*, 2011). Water is an important solvent, so it's unsurprising that there is a term specifically related to water absorption which is Hygroscopy. Hygroscopy is the phenomenon of attracting and holding water molecules via either absorption or adsorption from the surrounding environment, which is usually at normal or room temperature. Most hygroscopic materials are salts, but many other materials display this property. A material which gains moisture from the atmosphere as the relative humidity increases is said to be hygroscopic. The more hygroscopic a material is, the more moisture it will pick up during periods of high humidity. (Wirth *et. al.*, 2017)

A Surface contaminants in which moisture can be present can be classified in two categories: hygroscopic and non-hygroscopic. (Gysel*et. al.*, 2004) Examples of hygroscopic materials are salts, vegetal fibers, most metal oxides, many polymers, etc. Examples of non-hygroscopic surface contaminants are metal powders, glass granules, etc. If water molecules become suspended among the substance's molecules, adsorbing substances can become physically changed, e.g., changing in volume, boiling point, viscosity or some other physical characteristic or property of the substance (Choi and Chan, 2002).

Hygroscopic substances include cellulose fibers (such as cotton and paper), sugar, caramel, honey, glycerol, ethanol, wood, methanol, sulfuric acid, many fertilizer chemicals, many salts

(like calcium chloride, bases like sodium hydroxide etc.), and a wide variety of other substances. (Madsen and Lilholt 2003)

If a compound dissolves in water, then it is considered to be hydrophilic. The term hydrophilic can be broken down into two parts. The prefix "hydro" means water and the suffix "philic" means loving. Thus hydrophilic means water-loving. A hydrophilic molecule is a molecule that can mix and interact with water. (Ahmad *et. al.*, 2018). Zinc chloride and calcium chloride, as well as potassium hydroxide and sodium hydroxide (and many different salts), are so hygroscopic that they readily dissolve in the water they absorb: this property is called deliquescence. Not only is sulfuric acid hygroscopic in concentrated form but its solutions are hygroscopic down to concentrations of 10% v/v or below. A hygroscopic material will tend to become damp and cakey when exposed to moist air (such as the salt inside salt shakers during humid weather). (Randall, 2007) Because of their affinity for atmospheric moisture, hygroscopic materials might require storage in sealed containers. Materials and compounds exhibit different hygroscopic properties, and this difference can lead to detrimental effects, such as stress concentration in composite materials.

Differences in hygroscopy can be observed in plastic-laminated paperback book covers—often, in a suddenly moist environment, the book cover will curl away from the rest of the book. The un-laminated side of the cover absorbs more moisture than the laminated side and increases in area, causing a stress that curls the cover toward the laminated side. (Mohanty*et.al.*, 2000)

Examples of Hygroscopic Materials

Zinc chloride, sodium chloride, and sodium hydroxide crystals are hygroscopic, as are silica gel, honey, nylon, and ethanol. Sulfuric acid is hygroscopic, not only when concentrated but also when reduced down to a concentration of 10% v/v or even lower. (Gregorich*et. al.*, 2001)

Germinating seeds are hygroscopic. After seeds have dried, their outer coating becomes hygroscopic and begins absorbing the moisture required for germination. Some seeds have hygroscopic portions that cause the shape of the seed to change when moisture is absorbed. The seed of Hesperostipacomata twists and untwists, depending on its hydration level, drilling the seed into the soil. (Moiseev, 2008)

Animals can also have characteristic hygroscopic properties. For example, a species of lizard commonly called the thorny dragon has hygroscopic grooves between its spines. Water (dew) condenses on the spines at night and collects in the grooves. The lizard is then able to distribute water across its skin by means of capillary action. (Prakash and Sridharan 2002).

Chemistry of Hygroscopy

Hygroscopic substances are hydrophilic (water-loving). Chemically, they are polar or support hydrogen bonding. Some hygroscopic substances (like salt and alcohol) dissolve in water, while others do not (like nylon and silica gel). (Worthington and David, 2003)

Molecules are hygroscopic when they have charges or partial charges. These types of molecules are called polar. Water itself is a polar molecule, made up of one oxygen atom and two hydrogen

atoms bonded together with covalent bonds. Covalent bonds are a type of bond that occurs when two atoms share electrons. However, oxygen is more electronegative than hydrogen and so it pulls the shared electrons in the bond closer towards its nucleus. This creates a partial charge called a dipole and a polar covalent bond. Oxygen has a negative dipole since the electrons are pulled closer and each hydrogen atom has a positive dipole since the electrons are further away. (Gubskaya*et. al.*, 2002)

Thus, since water has partial charges, other molecules that interact with water must also have charges. This creates energetically favorable interactions. Water also interacts with itself and the dipoles on water molecules are responsible for some of the incredible properties of water that allow it to support life, such as cohesion and adhesion. Cohesion is the ability of water to form bonds with itself, and adhesion is the ability of water to form bonds with other molecules due to the dipoles. (Batista *et. al.*, 2001)

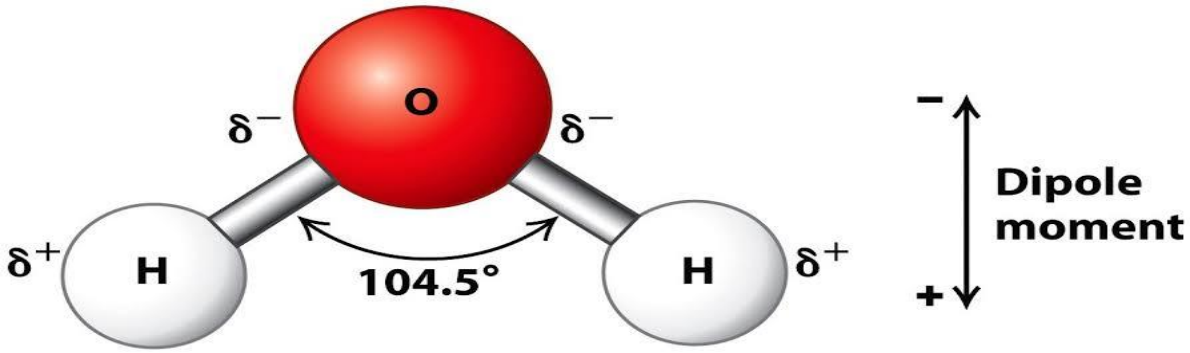

Figure 1: Polar Structure of Water

Hygroscopic molecules are basically polar compounds that have ionic groups. The polar nature of these hygroscopic molecules enables them to readily absorb water or polar solvent and eventually getting dissolved in polar solvents like water. Being a polar solvent, water is capable of forming a hydrogen bond (-H, -OH-). Hygroscopic molecules are polar in nature and easily form a hydrogen bond with water thereby getting absorbed or adsorbed. Notably, these interactions between the hydrophilic molecule and water are thermodynamically favored. In general, hydrophilic substances can easily form hydrogen bonds with polar solvents like water. The polarity of a substance usually defines its hygroscopicity.

Hygroscopy in Table Salt (Nacl)

Sodium Chloride NaCl molecule is comprised of a sodium cation Na^+ and a chloride anion Cl^-. The sodium cation and chloride anion are joined together through an ionic bond. It is a type of bond that is formed when two charged atoms attract one another. Salt easily get attracted to water, which should be expected since salt is highly polar. The water molecules pull apart the salt cations and anions, breaking their ionic bonds (Gupta,2015). The water's molecule negative specie (OH^-) attracts the positively charged cation, and the positive specie of the water molecule

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(H^+) attracts the negatively charged chloride. Once Na^+ and Cl^- come apart, the water molecules surrounds them. The sodium cations are surrounded by the water's oxygens, and the chloride anions are surrounded by the hydrogens. This makes salt a Hygroscopic Substance (Ming, 2001)

$NaCl_{(s)} + H_2O = Na^+_{(aq)} + Cl^-_{(aq)}$

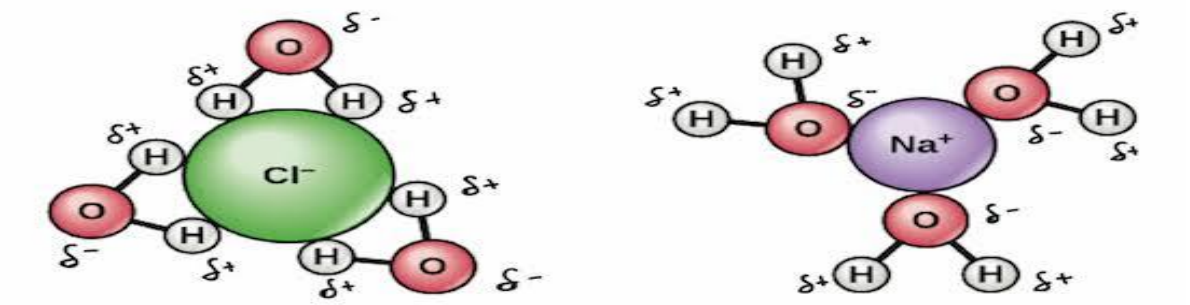

Figure 2: Visual Representation of Sodium Chloride Hygroscopicity

Hygroscopy in Sucrose

Sucrose is a molecule that consists of carbon, hydrogen, and oxygen altogether. Each O-H bond becomes a site for hydrogen bonding with water. Generally, because of that oxygen-hydrogen bonding (OH), it is a "water-loving" species which makes it a Hygroscopic Substance. Sugar is made up of carbon, hydrogen and oxygen, and contains a hydroxyl group, which makes the molecule very polar and therefore very soluble. Sugar also easily bonds with other molecules, and in doing so helps to hold on to the moisture of foods (which also makes it a natural preservative).

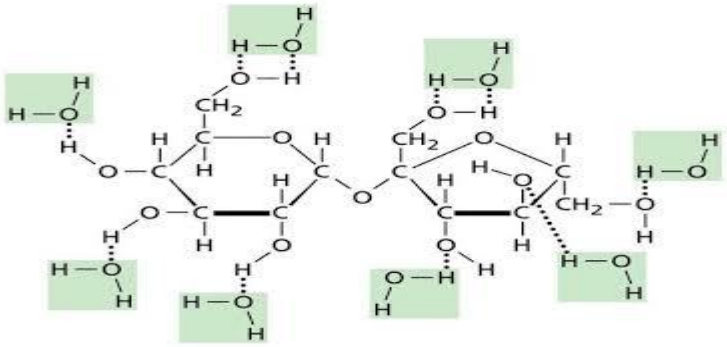

Figure 3: Sucrose Molecule showing how water molecules interact via Hydrogen bonding

Aside from polarity, there are three main processes, which may work together:

Absorption: Absorption is when a substance enters the body of a material. For example, cotton absorbs water.

Adsorption: Adsorption is when molecules adhere or stick to surface. For example, water adsorbs onto Plexiglas.

Capillary Action: Capillary action draws water through pores and narrow spaces due to the adhesive and cohesive properties of water. Silica gel beads are hygroscopic because silica attracts water, while tiny pores and irregularities collect it via capillary action. (Taib and Kumar, 2019)

Applications of Hygroscopic Substances

Hygroscopic polymers and molecules are widely utilized in the field of physics, chemistry, engineering, biomedical, drug delivery, food, pharmaceuticals, paint, textiles, paper, constructions, adhesives, coatings, water treatment, dispersing and suspending agents, stabilizers, thickeners, gelants, flocculants and coagulants, film-formers, humectants, binders and lubricants, personal care, building products, detergents, oil field products, and mineral processing, etc. (Tavana *et. al.*, 2004). Hygroscopic polymers exhibit good water vapor permeability due to ionic groups. Clothing or apparel that is required to be breathable is made up of hygroscopic fibers. Hygroscopic polymers like, Cellulose, Alginate, and chitosan are the most extensively used in the food industry wherein they are used as a thickening agent, stabilizer, and gelling agent (Erothu and Kumar, 2016)

Hygroscopic substances have the ability to absorb and hold water. Hydrogels are a type of hygroscopic polymers that are widely utilized in sanitary products, biomedical engineering, bio separation, agriculture, food processing, and oil recovery.

Disadvantages of Hygroscopy

Corrosion - Being exposed to moisture can lead to rusting for items with components that are made of iron. Rust is not easy to remove, and in most cases, doing so will cause further damage to the items.

Dampening - Exposure to moisture can lead to dampened items, especially those that are highly absorbent of moisture such as paper and garments. This in turn can cause the items to soften and become discoloured.

Musty smell - Increased moisture levels can cause some products to smell funky as a result of the growth of moulds, fungus and bacteria. Getting rid of the smell is not easy, especially if the products that are affected are books and clothing.

Conclusion

Hygroscopy is caused by the presence of water molecules in the air, known as moisture and being either absorbed or adsorbed. To fully understand hygroscopy or prevent it when it is un wanted, some of its chemistry was looked at. It was seen that the polar nature of the water molecule and some other substance coupled with hydrogen bonding plays a major role in understanding the origins of hygroscopy and how it may be prevented.

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Power Flow Analysis of 33/11kV, 15MVA Borokiri Injection Substation

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Abstract: When an electrical power network undergoes a non-steady state condition or when been subjected to an unbalance power condition, the need for a complete electrical solution arise in which load flow analysis become a key tool. This paper examined the power flow status of Borokiri 33/11kV, 15MVA injection substation of the Port Harcourt Electricity Distribution Company to ascertain its steady state operating condition for improved performance. The Newton Raphson Load Flow Techniques was used to analyze the network in Electrical Transient Analyser Program (ETAP) Software to determine the various bus operating voltages, active and reactive power flow at generator bus and voltage phase angles at specified bus bars. It was observed from the base-case simulation that Harold Wilson 11kV feeder was overloaded and was operating under a critical under voltage condition while New Road 11kV feeder was marginally under voltage. Both cases were resolved by the application of transformer load tap changing (LTC) mechanism and the introduction of appropriate shunt capacitor bank at strategic point of Harold Wilson feeder. The Voltage profile of Harold Wilson and New Road feeder were improved from 89.22% to 95.37% and 94.49% to 99.01% respectively. However, it was recommended that bifurcation of Harold Wilson 11kV feeder should be conducted to reduce the overloading condition of the network.

Keywords: Distribution Network, Power Flow, Newton Raphson Technique, Load Tap Changing, Optimal Capacitor Placement, Voltage Profile.

1.0 INTRODUCTION

Power flow analysis also known as load flow analysis is one of the major tools of power system analysis. When a power network goes through a non-steady state condition or when it is subjected to an unbalance power condition, there is a need for a complete electrical solution in which this analysis is the key tool. Power flow analysis is a systematical mathematical approach used in the determination of various bus voltages, active and reactive power flow through different branches, phase angle, generators and loads under steady-state condition of an electric power system. Power flow calculations are very essential for power system operation, economic scheduling and planning. The results of power flow analysis are used in the studies of the normal operating condition, outage security assessment, contingency analysis and optimal dispatching and stability of power system network [1]. The main objective of the power flow analysis is to determine potential problems, such as overloading of facilities, unacceptable voltage conditions, decreasing reliability, or any failure of the transmission or distribution system to meet performance criteria. After the analysis, the Engineer or power system specialist develops alternative plans or approaches that will not only prevent the foreseen problems but also will best meet the long-term objectives of system reliability and economy. Load flow analysis is the main requirement for planning and designing a new power system. Also, extension of existing power system for increasing demand [2]. For distribution system the power flow analysis is a very important and fundamental tool. Its results play the major role in the operational stage of any power system, its control and economic schedule, as well as the design and expansion stage.

The purpose of any load flow analysis is to calculate accurate steady-state voltages of all buses in the network, phase angles, the real and reactive power flows into all buses and transformer, under the assumption of known generation and load. The load flow solution also gives the initial conditions of the system when the transient behavior of the system is to be studied. In actual practice, it will be required to carry out numerous power flow solutions under a variety of conditions. A power (load) flow study is done on a power system to ensure that generation supplies the demand (load) plus losses, bus voltage magnitudes remain close to rated values, generation operates within specified real and reactive power limits and transmission lines and transformers are not overloaded [1]. The inadequate power supply and the incessant power failure from the central generating stations down to the final consumers suffers a lot of sets back; hence researchers and technologist, have resort to other means of managing this setback. In literatures, different methods have been implemented to provide an effective solution in regards to reliable power generation, transmission and delivery. In recent time, the impact of distributed generation linked to the distribution networks are on course. Distributed generation units have several benefits such as reliability, stability and economy; but it suffers some critical setbacks that may disturb these benefits as seen in [3].

Nigeria power grid network generating voltage falls within the range of 10.5kV – 16kV with operating frequency of 50Hz. It is step up to 330/132kV as primary/secondary transmission. Primary distribution voltage is 33kV to various injection substations for further distribution while secondary distribution voltage is 11kV to various consumers on point load and consumers down the road and streets through overhead lines

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and underground cables. 11/0.415kV transformers received the power from the secondary distribution network and distribute to consumers on tertiary distribution network using 3phase 4-wire system.

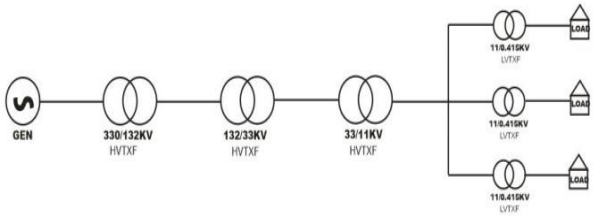

Figure 1: Schematic Diagram of Nigeria Power System

1.1 The aim of this Research Work

The aim of this research work is power flow analysis of 33/11kV, 15MVA Borokiri injection substation for improved performance.

1.2 Objectives of this Research Work

The objectives of this research work in regards to the aim are as follows:

i. Perform a load flow analysis of borokiri injection substation
ii. Improve the bus voltages margin of the distribution feeders; Harold Wilson and New Road feeder
iii. Improve the active and reactive power flow of the distribution feeders
iv. Possibly upgrade or resize overloaded grid connected transformers, etc.

1.3 Deriving the Power Flow Equations

The basic equation for power flow studies is derived from the nodal analysis equations for the power system. For example, for a 4-bus system [4]

$$\begin{bmatrix} Y_{11} & Y_{12} & Y_{13} & Y_{14} \\ Y_{21} & Y_{22} & Y_{23} & Y_{24} \\ Y_{31} & Y_{32} & Y_{33} & Y_{34} \\ Y_{41} & Y_{42} & Y_{43} & Y_{44} \end{bmatrix} \begin{bmatrix} V_1 \\ V_2 \\ V_3 \\ V_4 \end{bmatrix} = \begin{bmatrix} I_1 \\ I_2 \\ I_3 \\ I_4 \end{bmatrix} \quad (1)$$

Where *Yij are the elements of the bus admittance matrices,*
Vi are the bus voltages
Ii are the currents injected at each node.

- *The node equation at bus i can be written as:*

$$I_i = \sum_{j=1}^{n} Y_{ij} V_j \quad (2)$$

The relationship between per-unit active and reactive power supplied to the system at bus i and the per-unit current injected into the system at that bus:

$$S_i = V_i \ I_i^* = P_i + jQ_i \quad (3)$$

Where Vi is the per-unit voltage at the bus;

I_i^* - complex conjugate of the per-unit current injected at the bus;

Pi and Qi are per-unit real and reactive powers.

Therefore,

$$I_i^* = \frac{P_i + jQ_i}{V_i} \rightarrow I_i = \frac{P_i - jQ_i}{V_i^*} \quad (4)$$

$$\Longrightarrow P_i - jQ_i = V_i^* \sum_{j=1}^{n} Y_{ij} \ V_j = \sum_{j=1}^{n} Y_{ij} \ V_j \ V_i^*$$

$$Let \quad Y_{ij} = |Y_{ij}| \angle \theta_{ij} \ and \ V_i = |V_i| \angle \delta_i$$

$$Then \quad P_i - jQ_i = \sum_{j=1}^{n} |Y_{ij}| \, |V_j| \, |V_i| \angle(\theta_{ij} + \delta_j - \delta_i) \quad (5)$$

$$Hence \quad P_i = \sum_{j=1}^{n} |Y_{ij}| \, |V_j| \, |V_i| \, Cos \, (\theta_{ij} + \delta_j - \delta_i)$$

$$And \quad Q_i = -\sum_{j=1}^{n} |Y_{ij}| \, |V_j| \, |V_i| \, Sin \, (\theta_{ij} + \delta_j - \delta_i)$$

The starting point of a load flow problem is a single line diagram of the power system, from which input data for computer solutions can be obtained. Input data consist of bus data, transmission line data and transformer data. A bus is a node at which one or many lines, one or many loads and generators are connected.

In a power system each node or bus is associated with 4 quantities, such as Magnitude of voltage (V), Phage angle of voltage (δ), Active power (P) and Reactive power (Q)

In load flow problem two out of these 4 quantities are specified and remaining 2 are required to be determined through the solution of equation. In a power flow there are generally three buses they are shown on Table 1.

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Table 1: Types of Buses

Types of Bus	Voltage Magnitude (V)	Voltage Angle (δ)	Power Injection (P = Pgen - Pload)	Reactive Power Injection (Q = Qgen - Qload)
Slack Bus (Vδ-Bus) (only one of these)	Known	Known	Unknown	Unknown
(PV-Bus) (generator on AVR control)	Known	Unknown	Known	Unknown
(PQ-Bus) (load or generator not on AVR control)	Un known	Unknown	Known	Known

Source: Power World Corporation 2014 [5]

1.4 The Newton Raphson Method

The Newton Raphson method is an iterative method which approximates a set of non-linear simultaneous equations to a set of linear simultaneous equations using Taylor's series expansion and the terms are limited to the first approximation. It is the most iterative method used for the load flow because its convergence characteristics are relatively more powerful compared to other alternative processes and the reliability of Newton-Raphson approach is comparatively good since it can solve cases that lead to divergence with other popular processes. If the assumed value is near the solution, then the result is obtained very quickly, but if the assumed value is farther away from the solution then the method may take longer to converge. This is another iterative load flow method which is widely used for solving nonlinear equation. The admittance matrix is used to write equations for currents entering a power system. Equation (2) is expressed in a polar form, in which j includes bus i

$$I_i = \sum_{j=1}^{n} |Y_{ij}|\ |V_i|\ \angle(\theta_{ij} + \delta_j) \qquad (6)$$

The real and reactive power at bus *i* is

$$P_i - jQ_i = V_i^* I_i$$

Substituting for Ii in Equation (6) from Equation (2)

$$P_i - jQ_i = |V_i| \angle -\delta_i \sum_{j=1}^{n} |Y_{ij}|\,|V_j| \angle(\delta_{ij} + \delta_i) \qquad (7)$$

When the real and imaginary parts are separated, we have:

$$P_i = \sum_{j=1}^{n} |Y_{ij}|\,|V_j|\,|V_i|\,Cos\,(\theta_{ij} + \delta_j - \delta_i) \qquad (8)$$

$$Q_i = -\sum_{j=1}^{n} |Y_{ij}|\,|V_j|\,|V_i|\,Sin\,(\theta_{ij} + \delta_j - \delta_i) \qquad (9)$$

The above Equation (8) and (9) constitute a set of non-linear algebraic equations in terms of |V| in per unit and δ in radians. Equation (8) and (9) are expanded in Taylor's series about the initial estimate and neglecting all higher order terms to obtain a set of linear equations. The element of the Jacobian matrix are obtained after partial derivatives of Equations (8) and (9) are expressed which gives linearized relationship between small changes in voltage magnitude and voltage angle. The equation can be written in matrix form as:

$$\begin{bmatrix} \Delta P \\ \Delta Q \end{bmatrix} = \begin{bmatrix} J_1 & J_3 \\ J_2 & J_4 \end{bmatrix} \begin{bmatrix} \Delta\delta \\ \Delta|V| \end{bmatrix} \qquad (10)$$

J_1, J_2, J_3, J_4 are the elements of the Jacobian matrix.
The difference between the schedule and calculated values known as power residuals for the
terms ΔPi (k) and ΔQi (k) is represented as:

$$\Delta P_i^{(k)} = P_i^{sch} - P_i^{k} \qquad (11)$$

$$\Delta Q_i^{(k)} = Q_i^{sch} - Q_i^{k} \qquad (12)$$

The new estimates for bus voltages are [1]

$$\delta^{(k+1)} = \delta_i^{(k)} + \Delta\delta_i^{(k)} \qquad (13)$$

$$\left|V^{(k+1)}\right| = \left|V_i^{(k)}\right| + \Delta\left|V_i^{(k)}\right| \qquad (14)$$

2.0 LITERATURE REVIEW

Over the years, there have been many researchers and works on power flow analysis and improvement techniques of distribution networks. Some related works are reviewed below: The Fast decoupled and Newton-Raphson load flow methods were used in [6] to analyze the Port Harcourt Town 33kV Distribution Network. According to authors, the main challenge encountered in this network is the frequent power outages caused by heavy losses on the line, poor power factor at load end, low voltage experienced, overloading of feeder transformers and inadequate size of line conductors. The writers recommend that reactive power needed by the network be supplied by capacitors located optimally at strategic places to improve the power factor at load end, thereby improving the voltage profile of the buses and the network at large.

The Fast-Decoupled Newton Raphson Techniques were used in [7] to analyze the electrical energy supply to Abule-Egba part of Lagos State, via Agbefa 11kV feeder. It was discovered that the voltage profile of the buses were very low and the magnitude of the active and reactive power flow were also poor. The issue was corrected by the placement of optimally sized and strategically placed capacitors close to load end to provide the system with reactive power.

In [8], a novel method for designing an electrical distribution network within Damaturu town was presented. According to the researchers, the town is supplied by two highly overloaded feeders due to expansion of the town as a result of series of development. The feeders; Alimarimi and Maiduguri road feeder are supply by 2 x 7.5MVA transformers at the injection substation. These have resulted to the epileptic power supply to the areas covered by the feeders. After series of analysis on the

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network, the authors recommended the use of 2 x 15MVA transformers at the injection substation to be able to feed the two feeders optimally thereby, tackling the problem of overloading and stress on the installed power transformers.

Investigations were made in [9] as to the causes and effects of voltage drops on the GMC 11kV distribution feeder in Tarkwa, Ghana. It was observed that the major causes of voltage drop on the feeder were due to Hot Spots, non-uniform conductor material, under-size conductors and overloading of the feeder. The authors proposed that a pressure test and proper fault maintenance be conducted on the feeder. They also added that, operating voltage should be increased so that power could be distributed in reduced currents to enhance the reduction of I^2R losses.

The researchers in [10] in their research carried out on Dumez 11kV distribution feeder network using DIsilent Power Factory 2016 and ETAP 7.0. stated that the Nigeria electrical power distribution network is constantly challenged by the ever-increasing load demand. This increase in load demand could be checked by performing a load flow analysis on the existing distribution network to ascertain the true performance of the network with its steady state operational values. According to authors, most distribution substation's irregular supply and under-voltage in the system are due to the weak and obsolete nature of the system infrastructures and thus, experiences high energy losses. This resulted to increase in rate of load shedding by the utility company as a way of controlling the challenge. The network were improved by the used of Distributed Generation (DG) technique.

3.0 METHODOLOGY

3.1 Data Source

The data source for this research work is Port Harcourt Electricity Distribution Company (PHEDC). The data gathered are: installed capacity of injection sub-station, single line diagram of substation, examined feeders, total number and power rating of distribution transformer. Newton Raphson Method will be used for computing bus voltages and the simulation on each of the feeders will be carried out using ETAP software.

3.2 Description of Substation

This study was carried out using 1x15MVA, 33/11kV Borokiri Injection Substation. Borokiri injection substation is one of the distribution substations of Port Harcourt Electricity Distribution Company located at Borokiri, Port Harcourt Local Government Area of Rivers State. It lies at latitude 4.742° N and longitude 7.035° E. The substation has its 33kV source from Port Harcourt Town Transmission Station. It has two 11kV outgoing feeders namely; Harold Wilson and New Road Feeder with 5.5MW and 2.4MW load at peak respectively.

Table 2: Feeders Details

Feeders	**Route Length (km)**	**Conductor Size (mm2)**	**Conductor Type**	**No. of Distribution Transformer (KVA) 500 300 200 100 50**
Harold Wilson	16.7	150	Aluminium	26 4 - - -
New Road	6.5	150	Aluminium	11 - 1 - -

Source: Port Harcourt Electricity Distribution Company (PHEDC) [11]

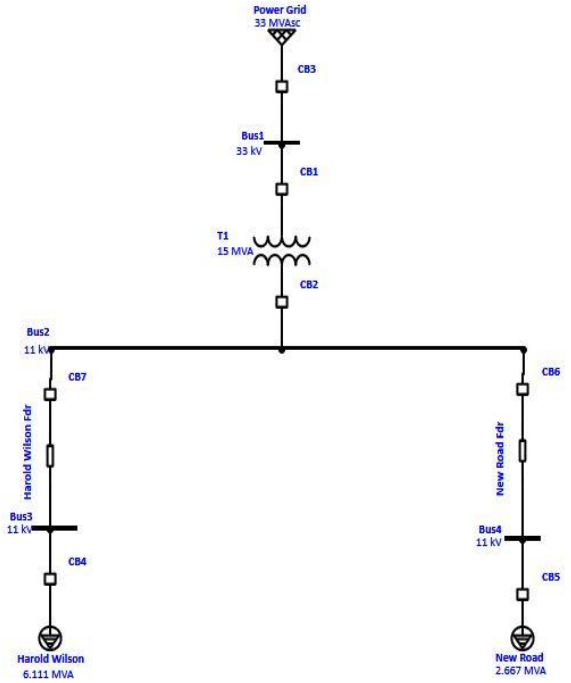

Fig. 2: Single Line Diagram of Borokiri Injection Substation

4.0 RESULTS AND DISCUSSIONS

The network parameters of the Borokiri injection substation were used to carry out a base case simulation to ascertain the existing state of the networks in ETAP 19.0 Software and the results are shown in Figure 3. The ETAP simulation produced three distinct color codes across all parameters, inferring to meanings. Red zone (bus 3) implies that critical attention is needed as it is operating under an under voltage condition, the system is considered to be on the verge of breakdown at this point. Purple zone (bus 4) means this is a marginally operational zone, though not too good but can be managed, areas with this code needs moderate attention but not immediate. Such systems could become Red (critical) at any time if not worked on. Black zone (bus 2) is a perfect working zone; the system is accepted to be optimally functional at this point. Our goal is to make the entire system operate within the Black zone. To do that we introduce Transformer Load Tap Changing (LTC) on the power transformer so as to increase the voltage of the upstream buses at the substation. After then, shunt capacitors were installed on the 11kV bus 3 at load end to raise the network power factor, which then improved the voltage profile of the network and reduced losses from the network. The comparative result of the Voltage profile of Borokiri Injection Substation before and after improvement is shown in figure 6.

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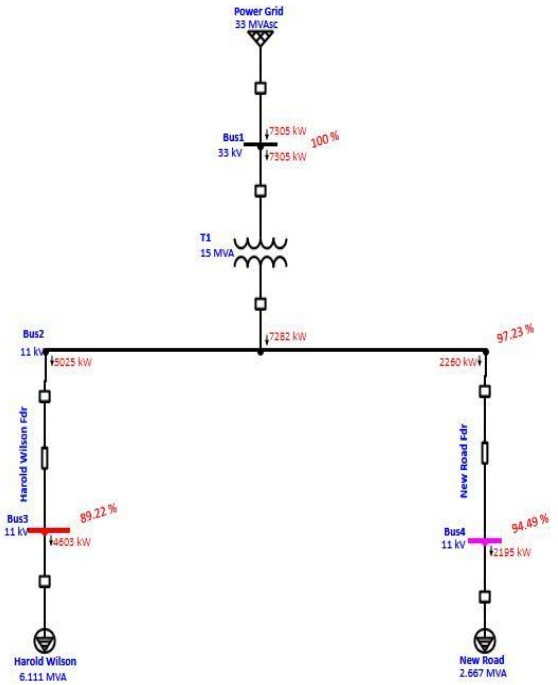

Fig 3: Load Flow Results of Borokiri Injection Substation

4.1 Transformer Load Tap Changing (LTC)

The principle of transformer tap changing is based on changing the number of primary or secondary turns of the transformer. A single step = $\pm 2.5\%$ of the nominal rating. On the power transformer, tap position based on operating condition = Step 1 Percentage increase = 2.5% Voltage rise. The tapping (-2.5%) was done on the high voltage winding of the transformer, it improve the voltage level of bus 4 which was marginally under voltage (94.49%) to a perfect working condition (99.01%). A decrease in primary turns causes an increase in e.m.f per turn thereby causing corresponding increase in the secondary output voltage.

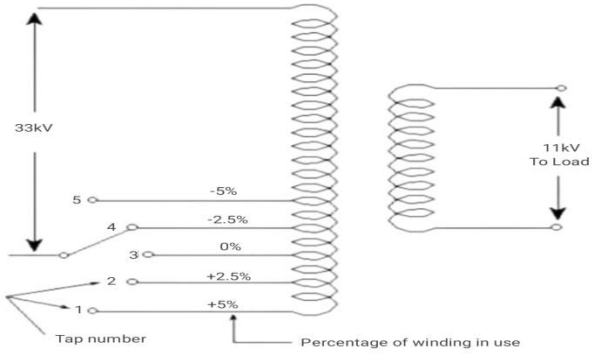

Fig. 4: Transformer tapping diagram

4.2 Shunt Capacitor Bank

Capacitor bank help to improve the voltage profile of a network by supplying reactive power to the load or line. ETAP does that by also considering the economic factor. Capacitor bank by improving the voltage also improves the power factor of the system.

$Shunt\ capaitor\ bank\ 12 \times 300Kvar$ were used on bus 3 to improve the voltage from 89.22% (critically under voltage) to 95.37% (Perfect working voltage). This was obtained from the simulation result on Optimal Capacitor Placement Module in ETAP 19.0.

Manually, it can be calculated using equation (15)

$$cKvar = KW\ (tan\theta_1 - tan\theta_2) \quad (15)$$

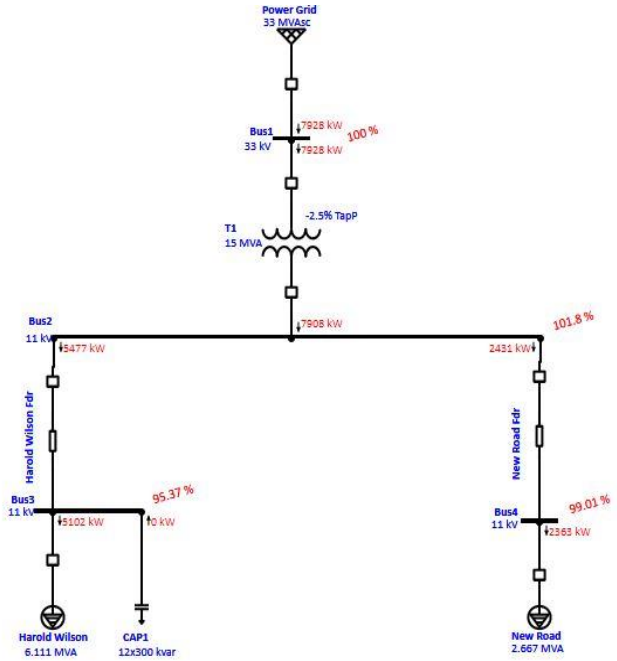

Fig 5: Load flow results after tap changing and introduction of capacitor bank

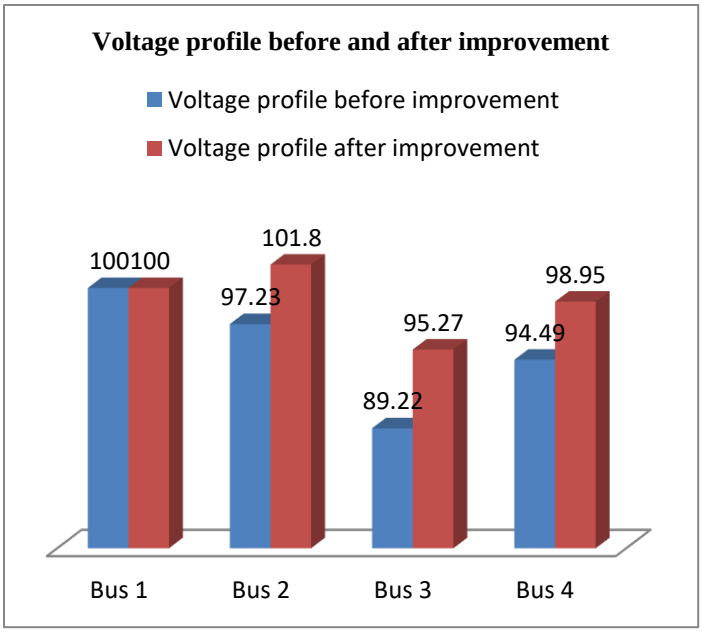

Fig 6: Voltage profile of Borokiri Injection Substation before and after improvement

5.0 CONCLUSION AND RECOMMENDATION

5.1 Conclusion

Load flow analysis is the backbone of any electrical power network. The important information obtained from this study are essentially the magnitudes and phase angles of load bus voltages, active and reactive powers at generator bus, real power flow on the lines and voltage phase angles at specified bus bars. The information obtained from the above analysis are mainly used in continuous monitoring of the present state of the system and for analyzing the effectiveness, security constraints and economic considerations of alternative plans for future system expansion in order to achieve the increased demand of load. Load flow solution is the primary requirement for designing a new power system and for planning an extension of the existing one for increasing demand. In this work the simulation and analysis of 33/11 kV Borokiri injection substation has been done with the help of the Electrical Transient Analyzer Program (ETAP) software. Harold Wilson feeder was found to be critically overloaded but was improved by optimally placing shunt capacitor bank. ETAP is an outstanding tool for the engineers that can provide the solution for the loss of the transmission line, load, transformer or the generator.

5.2 Recommendation

From the results of the analysis carried out on the Borokiri Injection Substation, the following recommendations become imperatives:

- Bifurcation of Harold Wilson 11kV feeder should be done.
- Appropriately sized capacitors should be kept at strategic points mostly on the Harold Wilson feeder.
- Harold Wilson feeder should be re-conducted with larger sizes and reduced length.
- Pressure testing should be done on feeders to correct any form of hot spots.

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