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CONTENTS

A Survey of Human Pose Estimation Based on Lightweight Neural Network

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Abstract: With the rapid development and the popularization application of lightweight artificial intelligence technology, has deepened the communication between human beings and Information Physics in various fields. How can lightweight artificial intelligence better express human pose characteristics will maximize the work efficiency between people and things. In this paper, the lightweight intelligent system is given to human pose to express will more effectively, and the lightweight convolution neural network is used to extract human pose and other patterns. Forming a lightweight, miniaturized and stable intelligent algorithm has important theoretical significance for the application of human pose and education action.
Keywords: Human Pose Estimation; Neural Network; Lightweight

1. INTRODUCTION

Lightweight is not only the core of the future application of artificial intelligence, but also the key point to solve the popularization and promotion of artificial intelligence development planning. These problems include the continuous strengthening of vision technology, algorithms, computing power, databases, chips and other aspects. With the great development of functions, the software and hardware are becoming more and more complex and huge, the computational complexity of artificial intelligence algorithms is rising sharply, the energy consumption cost of computational neural networks is becoming higher and higher, and the amount of data is growing explosively. These have become constraints on the future development of regional artificial intelligence, How to adapt the application of artificial intelligence and its computing to miniaturization and lightweight has become an urgent problem to be solved.

The development plan for a new generation of artificial intelligence and the innovative action for artificial intelligence in high-level application education will promote the students of high-level application schools to enter the learning mode of "artificial intelligence +". At the same time, it will promote the better auxiliary learning of lightweight artificial intelligence and form the popularization of Intelligent Technology application, Therefore, this paper puts forward the research on human pose and action based on lightweight neural network, which is suitable for the current development trend.

2. RELATED WORKS

Lightweight artificial intelligence can improve the efficiency of chips, platforms and algorithms, and realize low-power artificial intelligence training and application deployment in consideration of more miniaturized physical space, which can explore the specific application progress of human pose estimation. Based on the development of lightweight artificial intelligence in different dimensions, this paper explores and studies the trend in all aspects of development planning.

At the national level, the idea of innovation driven development in the 14th five year plan and the long-term goal of 2035 aims at cutting-edge fields such as artificial intelligence, quantum information, integrated circuits, life and health, brain science and so on. At the regional level, the outline of the development plan of Guangdong, Hong Kong and Macao Dawan district plans to build a smart city cluster, promote the pilot demonstration of new smart cities, and vigorously develop smart transportation, smart energy, smart municipal administration and smart community. The development plan for a new generation of artificial intelligence in Guangdong Province clearly promotes the in-depth integrated development of artificial intelligence and economy, society and industry. Dongguan issued the development plan of key emerging industries in Dongguan (2018-2025) and the development plan of new generation artificial intelligence in Dongguan (2019-2030), proposing to focus on five emerging fields and break through ten key industries. Research on the new generation of information technology and intelligent manufacturing has become the main driving point, breaking through the industry, and taking the new generation of artificial intelligence as the new driving force for future development. Almost every once in a while, we can see exciting planning or technological breakthroughs in relevant fields. The smaller the range of extreme lightweight, the collaborative lightweight of software and hardware is formed, and the lightweight AI application scenario breaks through the limit of small intelligence. Facing the popularization and application of lightweight artificial intelligence technology, it is an inevitable trend of the development of the current era.

Lightweight neural network, as the current technology of artificial intelligence research, has developed very rapidly, mainly in two aspects: one is the network structure design, the other is the compression of neural network. In terms of deep neural network: in order to obtain better performance, the data volume of lightweight neural network is increasing, so that CNN goes out of the laboratory and is more widely used in mobile terminals. There are models including Mobilenet, Shufflenet, Xception, etc. these models adopt 1x1 convolution core by improving the size of lightweight core; The idea of 1x1 convolution kernel is widely used in WaveNet proposed

by Google Deepmind in 2017 for text to speech generation, research scientists of OpenAI in 2018 proposed Glownet based on stream generation model to generate real pictures, and NVIDIA researchers proposed a combination of WaveGlow training neural network to generate high-quality speech.

Other research paths to overcome the technical defects of lightweight neural network CNN: in October 2017, Geoffrey Hinton published a paper entitled dynamic routing between capsules, which proposed that CapsNet is a new and improved lightweight neural network, which is represented by vector substitution mode, and the vector length represents the estimated probability of whether an object exists or not. It solves the recognition errors of CNN in the change of puzzle position or structural pattern, and has a good recognition effect on the recognition of overlapping patterns. Combined with the current CNN research hotspots and technical innovation methods, this study uses the improved CNN structure to strengthen the classification method in pose and action, so as to lightweight the role of artificial intelligence in human pose image mode.

In recent years, the lightweight neural network Yolo series has developed rapidly. Recently, PPYOLO tiny, which surpasses YOLOv5, has realized ultra-lightweight algorithm with a capacity of only 1.3M, which can quickly realize the target detection algorithm. In the current development and application scenarios of a large number of terminals such as mobile Internet, Internet of things and Internet of vehicles, the demand for deploying ultra-light human pose estimation directly on edge devices has increased sharply. Including deploying human pose estimation algorithms on raspberry pie, FPGA, DSP and other chips with extremely low hardware cost for automatic production. Our commonly used mobile app also needs to directly adopt a deep learning algorithm of no more than 6M at the terminal. The emergence of ultra-lightweight algorithm accelerates the popularization of human pose detection of small and micro electronic products.

3. DEVELOPMENT OF HUMAN POSE ESTIMATION

Cong Leng, artificial intelligence chip Innovation Research Institute of Chinese Academy of Sciences, published an article in China Science Daily. The second half of intelligence: the rise of lightweight artificial intelligence; It is pointed out that tiny AI will push artificial intelligence to the mainstream and turn AI from a high threshold technology giant competition to an intelligent ecology that benefits people's livelihood. MIT science and technology review also listed "tiny AI" as "the world's top ten breakthrough technologies" in 2020. In its selection reasons, it wrote: "Lightweight intelligence makes the existing services such as voice assistant and mobile camera better and faster. Therefore, lightweight artificial intelligence will also enable human pose estimation to be applied to more scenes, such as learning situation analysis based on classroom scene and classroom virtual teacher assistant requiring faster response time[4].

In terms of model building, the application of human pose estimation and behavior recognition based on visual information has always been a hot research and mature technology[5]. The application of lightweight neural network to human pose estimation has developed rapidly in recent years, such as the lightweight behavior recognition method based on key frame. A lightweight convolution neural network is designed as a feature extraction network, which can make efficient use of the apparent information and motion information of video [6]. This research idea can consider the real-time human pose estimation based on lightweight network. According to the requirements of mobile devices for algorithm parameters and computation, a real-time key point detection algorithm based on lightweight network can be established in reference [7]. In the process of adaptive visual decision-making, teachers' behavior recognition should be considered, and teachers should be tracked and predicted at the same time. In reference [8], the deep enhancement network of behavior decision-making is used for visual tracking. Similarly, the lightweight network based on behavior decision-making can be used for visual information processing.

In the implementation of virtual lightweight intelligent teacher assistant, there is less research on specific applications, mostly based on model and theoretical research. Literature [9] built a virtual action tutor for action online learning, and the learning behavior is more extensive. Literature [10] analyzes the emotional performance of virtual teachers, designs the behavior expression mode of virtual teachers from four aspects: facial expression, body pose, voice and speech, and discusses the application advantages and value of virtual teachers based on emotional calculation combined with application cases, so as to provide reference for the research and practice of virtual teachers. Literature [11] established a framework for intelligent evaluation of teachers' teaching behavior through teaching video. Literature [12] intelligent classroom assistant adopts natural language processing and emotion analysis technology to naturally interact with students to realize interesting learning and personalized teaching. It puts forward the teaching framework of intelligent classroom assistant and realizes the specific application of classroom teaching. The construction of virtual teacher assistant with emotional expression and formulate teaching process application strategy assistant, so as to assist teachers in effective emotional interaction with learners and lightweight artificial intelligence devices.

4. SUMMARY

As a popular key technology, lightweight artificial intelligence will change or even subvert many traditional industries, such as education, health and health, industrial automation and transportation. Lightweight neural network will also create some new products, models and even industries. Facing the subversive change, we should actively embrace the change and explore the problem of human pose estimation in teaching. Build a virtual teaching assistant with lightweight artificial intelligence miniaturization and micro collaborative assistance. Combined with the practice of lightweight artificial

intelligence, human pose estimation is applied to break the boundary between learning and teaching, and explore the relevant research progress. Pave the way for further lightweight original innovation and more subtle fields, and realize ultra light fields such as intelligent assistant.

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The Trinity of Government School and Enterprise Advantages and Elements Sharing Collaborative Innovation Center

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Abstract-Nowadays, due to the continuous transformation of the economic structure, new adjustments to the training programs of higher education institutions are constantly being proposed, and we need to provide more ideas.In particular, the teaching of colleges and universities should be aligned with the training goals of application-oriented and skill-oriented.Therefore, the "trinity of government, school and enterprise" has become an important way out for the teaching reform in colleges and universities.So how can we effectively achieve this goal? Therefore, we can try to build a shared collaborative innovation center based on the trinity of government, university, and enterprise advantages. This article specifically focuses on this topic to give specific explanations.

Keywords-Higher Education Reform; The Trinity Of Government; School And Enterprise; Advantage Elements; Sharing; Collaborative Innovation Center

INTRODUCTION

Unlike the past simplification of the higher education model that focused on theoretical talents as the main training target, the reform of higher education now requires us to achieve hierarchical teaching, and for some undergraduate colleges and universities, we must integrate with the training goals of applied and skill-based training.This is also an important aspect of the structural reform on the supply side of higher education.Deepening innovation and entrepreneurship education is an important starting point for the supply-side structural reform of talent training in applied undergraduate colleges[1].And what are the specific aspects of deepening innovation and entrepreneurship education? So we need to explore the emerging model of "the trinity of government, school and enterprise".In this regard, we already have some more successful cases.

THE NECESSITY OF A COLLABORATIVE INNOVATION CENTER FOR SHARING THE ADVANTAGES OF THE TRINITY OF GOVERNMENT, SCHOOL AND ENTERPRISE

Today, our school education is mainly the teaching materials for the discipline, and most of the content of the disciplines is "past form".This is the crystallization of our predecessors to nature and society, and solidify in the textbooks learned today.However, life experience tells us that many of our knowledge and abilities are not learned in the books written in the former person, but learned in life practice.The students we have to cultivate today are "future" talents, so only the knowledge of the past, let students deal with infinite changes, these knowledge is far less than enough.Therefore, today we are thinking about educational reforms, it is necessary to pay attention to the civilized achievements of the inheritance, but also pay attention to the special requirements of future society on talents.To achieve a collaborative innovation center for sharing the advantages of the trinity of government, school and enterprise, it is necessary to take school-enterprise cooperation as the entry point[2].Then focus on strengthening the construction of the platform to create a perfect model of collaborative training.The necessity of this model is reflected in the specific requirements for the application-oriented undergraduate training mechanism. Let's discuss its necessity in detail below.

Conducive to cultivating innovative talents

Innovation is a senior performance of human subjective energy, it is the original ability of human unique creation and development, which is the eternal motivation to promote social progress and development.Because innovation is the source of knowledge evolution.Knowledge is limited, innovation is unlimited.Only innovation can drive all the development in the world, thereby driving all progress.If a nation or a country wants to advance to the forefront of The Times and become a world power, it cannot do without innovative thinking, still less all kinds of innovation.At the same time, countries around the world have also increasing the investment and intensity of cultivating and researching innovative talents in various aspects.Cultivating innovative talents is one of the greatest demands for talent cultivation in our age.It can be said that this goal is also in line with the needs of the reform of the talent supply side.Especially in the new era, there are also new requirements for the cultivation of innovative talents.Innovative talents in the new era must be talents who have received comprehensive training in science, technology, economy, and culture[3].They must be talents who can meet the development needs of the industry in their own quality.Therefore, through "the trinity of government, school and enterprise" model, education, talents, industry and other chains can be effectively combined, so that the cultivation of talents can achieve the school and society and other aspects of the multiple influence, so as to significantly improve the innovation ability of talents.

Conducive to cultivating talents who can meet business model changes

This is an era of highly developed informatization, as well as an era of 5g commercial and Internet+.This has brought many outlets and opportunities to the transformation of business models[4].This also requires us to step out of the traditional business model, create a new business model

based on Internet +, and integrate various online and offline resources to meet the needs of 5g commercial use.At this time, we are required to cultivate talents so that they have the development and operation capabilities of the front, middle and back ends.And this is also one of the more lacking areas in our talent training today.Therefore, through the "the trinity of government, school and enterprise " model, 5G commercial and Internet + can be brought into the talent training, so as to effectively cultivate talents who can meet the business model reform, and then let them participate in the innovation and innovation, and finally make the quality of talents more in line with the times[5].

Meet the specific needs of applied undergraduate training

In order to establish a modern vocational education system, the Ministry of Education launched the transformation and reform of colleges and universities in 2014, requiring the transformation pilot colleges and universities to construct a governance structure with the participation of industries and enterprises, take technology application as the guidance, highlight the collaboration between industry and education, and establish and improve a comprehensive, innovative and application-oriented talent training model to meet the market demand.In this context, based on the guiding ideology of the integration of production and education, we will carry out in-depth innovation and entrepreneurship education for college students, establish an educational platform for off-campus college students' dual innovation practice, integrate the tripartite resources of school, enterprise and government, improve the collaborative education mechanism, cultivate high-quality technical application-oriented talents with innovative entrepreneurial spirit and practical ability, it has become one of the important contents in the reform of talent training mode in application-oriented universities.

THE MAIN PROBLEMS IN THE COLLABORATIVE INNOVATION CENTER OF THE TRINITY OF GOVERNMENT, SCHOOL AND ENTERPRISE SHARING ADVANTAGES AND EELEMENTS

The training mode is relatively simple

The current application-oriented undergraduate colleges mainly adopt the first classroom on campus, in other words, courses on innovation and entrepreneurship and the second classroom on campus will be set up in the talent training program, teachers guide students to participate in various innovation and entrepreneurship competitions, carrying out innovation and entrepreneurship education for college students lacks the participation of the third classroom outside the school, that is enterprises, industries and local governments[6].This training mode leads to a single form of innovation and entrepreneurship education and a short period of effect.

The disconnect between classroom training and practice training

Some applied undergraduate colleges have unclear understanding of the significance of innovation and entrepreneurship education for college students, focusing on innovation and entrepreneurship, and lightly on the essence of education[7].It will continue to innovative entrepreneurship education as to a few innovative, entrepreneurial intention of students in education, that is one of the few people's patent, one-sided pursuit of students' office and financing amount, no innovation entrepreneurship education into the whole talent cultivation system, no form for the development of innovative business knowledge, professional knowledge and industry coupling interaction.

There is a distance between institutions and industries

The division of disciplines, majors, and knowledge is common in applied undergraduate colleges. In addition, the "wall" between schools and industries is also a natural barrier to achieve the goals of innovation and entrepreneurship education. How to bridge the boundaries of disciplines and industries? There is an urgent need to explore the establishment of an innovation and entrepreneurship education platform that crosses the boundaries of industry and academia.

Insufficient protection system

Schools, enterprises, and the government often lack long-term cooperation mechanisms due to unclear responsibilities and rights, especially the lack of motivation for enterprises to jointly cultivate innovative and entrepreneurial talents.

SOLUTIONS TO MAJOR PROBLEMS

Broaden the channels for talent training

The current demand for talent is very large, but there is still a big gap in talent supply and demand.Therefore, to better train talents, we need to broaden talent training efforts.Not only to strengthen talent cultivation in simple learning, but also to build more stages for talent cultivation.Only by allowing them to expand their knowledge in more places and discover their shortcomings can they pay more attention to their shortcomings and make more efforts in self-reinforcement.Of course, in order to better cultivate talents, we also need to give play to the role of schools and give more space for talents to grow, so as to cultivate talents more in line with the needs of social development.Integrate off-campus resources to build a third classroom, and carry out various off-campus double innovation practice projects.For example, schools and enterprises jointly build youth innovation spaces, guide students to participate in various innovation and entrepreneurship competitions, help businesses incubate promising projects, and provide a free entrepreneurial platform for university students.Hiring successful business people as off-campus mentors to provide students with guidance on career planning, internship practice, entrepreneurship and employment[8].It can also design off-campus dual innovation practice projects for college students around smart agriculture, rural e-commerce, beautiful villages, targeted poverty alleviation and other national construction projects, and optimize the professional group dual innovation curriculum system and practical teaching content.

Achieve multiple integration of training models

Realize the joint development of school and enterprise, compile a talent training plan for entrepreneurship and innovation, curriculum syllabus and handouts for entrepreneurship and innovation practice, school-enterprise jointly completed teaching reform projects and

published papers.By transferring innovative practical courses to enterprises to carry out "classroom revolution", schools and enterprises can jointly teach entrepreneurship practical courses, jointly guide students to write entrepreneurship practical course reports, and jointly reform the whole process of practice assessment and evaluation.Through the method of "on-campus tutor + off-campus tutor", students are instructed in their graduation design, so that innovation and entrepreneurship education runs through the whole process of talent training, and its integration with professional education is realized.At the same time, through the local government and enterprises jointly held the county brand release conference, students to promote products on site, stimulate students' innovation consciousness.Then, through the rural e-commerce poverty alleviation lecturer project and the school-enterprise cooperation, students are guided to make the bidding documents for the operation of rural e-commerce service center at the county level, and build the county agricultural products traceability system platform.

Realize the real synergy between universities and industry

The school and the enterprise jointly declare and build a provincial-level university student off-campus innovation and entrepreneurship practice education base, which can not only help enterprises to better understand the needs of local industrial development for the ability of entrepreneurial talents, but also enable corporate mentors to enter the school and in-school mentors to enter the enterprise.In this way, it is possible to form a faculty of innovative and innovative education teachers with "specialized creation, financing and integration + combination of expertise" and achieve deep integration of production and education.At the same time, supported by the construction of the base platform and relying on the resources of the three parties of the university, through carrying out various forms of entrepreneurship and innovation practice projects, further achievements have been made in the training mode of entrepreneurship and innovation talents, courses, teaching materials, teaching team, educational reform and research, assessment and evaluation, organization and management, rules and regulations, and integration of industry and education.

Establish a complete guarantee system

From the perspective of government-school-enterprise-society, systematically build out-of-school practical education guarantee conditions for the cultivation of entrepreneurial and applied talents.The government provides policy support for innovation and innovation education, and encourages universities to establish unique innovation and innovation bases.The school integrates entrepreneurship and innovation education with professional education, strengthens the practical education of entrepreneurship and innovation, improves the management rules and regulations of innovation and entrepreneurship outside the school, as well as the construction of assessment and evaluation incentive mechanism, and provides the corresponding fund guarantee.The main problems and solutions are shown in

Table 1. MAIN PROBLEMS AND SOLUTIONS

main problem	Single training mode	The classroom is out of touch with practice	There is a distance between institutions and industries	Insufficient protection system
solution	Broaden training channels	Achieve the integration of training models	Realize the real synergy between the two	Establish a complete pillowcase system

The basic structure of the collaborative innovation center for sharing the advantages of the trinity of government, school and enterprise is shown in the figure1:

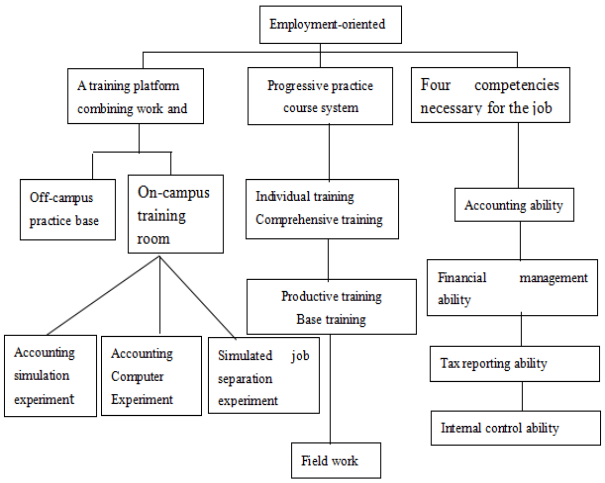

Figure 1. Basic structure diagram

CONCLUSION

We will improve personnel services and speed up personnel training.The cultivation of talents is a systematic project, which needs universities to play an active role.Universities and institutions across the country provide high-level talent training programs, and provide convenient services in recruitment, talent introduction and project incubation.Obviously, better service for talents can speed up the training of talents, enhance the strength of talents, so that talents can better serve the society.The trinity of government, school and enterprise share the advantages of collaborative innovation center, which is an adjustment and reform of application-oriented undergraduate education mode under the new era situation.For this reason, we need to reflect on the original training model, constantly focus on the deficiencies in the ghost zone, and make relevant adjustments to the training model.

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Study on the Influences of Application Colleges and Universities Teachers on Ten Education System Construction

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Abstract: Colleges and universities are the place to cultivate people, the base of educating people for the party and the country, and the cradle to cultivate young people with "four services" consciousness and "four correct understandings" in the new era. Teachers in application colleges and universities play an important role in the process of effectively constructing the "ten education system". In the new era, teachers in application colleges and universities should be guided by the socialist core values, aim to serve the local economic and social development, fully excavate and exert the education function of curriculum, scientific research, practice, culture, network and psychological work, support the improvement of educational mechanisms in management, service, funding and organizations, to build a comprehensive, systematic and long-term education mechanism.

Key words: Ten Education System; Application Colleges And Universities; Teachers; The New Era

1. THE IMPORTANCE ANALYSIS OF THE COLLEGE AND UNIVERSITY TEACHERS IN UNDERTAKING THE MISSION OF EDUCATING PEOPLE

Application colleges and universities are application-oriented, the purpose of teaching and scientific research activities is to serve the development of local economy, society and industry. Cultivating a first-class teacher team is an important way to promote the transformation and development of application colleges and universities. The construction of teacher team should be based on the cohesion of team strength of each teacher based on their own work. Under the guidance of Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era, teachers should conscientiously study and implement the spirit of relevant conferences on school construction and student development, deepen the spiritual implementation, and take on the mission of educating people. In this regard, under the background of the new era, it is of great theoretical and practical significance to explore the mechanism of the college and university teachers in the construction of "ten education system", give full play to the innovation of comprehensive education and improve the quality of talent training.

The Implementation Outline of the Quality Improvement Project of Ideological and Political Work in Colleges and Universities presented the concept of "ten education system", stressed the importance of educational system in curriculum, scientific research, practice, culture, network, psychological work, management, service, funding and organizations[1]. According to document guidelines, we explore the importance and mechanism of teachers in the construction of "ten education system", focus on the analysis of the role of teachers in the curriculum, scientific research and practice education system construction.

Teachers should take moral education as the foundation and ideal education as the core, focus on socialist core values-led, and improve the long-term mechanism of systematic education. In order to form a comprehensive education pattern, and cultivate students who have all-round development of virtue, intelligence, physical conditions, mind status and community service in the new era. We should effectively build an all-round, systematic and long-term education mechanism in the new era, so that the talents we cultivate can participate in the great responsibility of socialist construction and national rejuvenation.

2. THE CHARACTERISTIC ANALYSIS OF THE TEACHERS IN APPLICATION COLLEGES AND UNIVERSITIES

2.1. Great responsibility

Teachers in Application colleges and universities play a certain exemplary role in teaching, scientific research, practice, culture, network, psychological work and other works, take an important role to guide the way of students' growth. Teachers' self-quality and political accomplishment are closely related to the talent training, teaching and research, cultural inheritance and service innovation of colleges and universities.

2.2. Application-oriented

The college and university research team focuses on the theoretical and applied research work in a certain field through different cooperation modes, and undertakes the regular tasks of cultivating students. As the application colleges and universities are application-oriented, the purpose of teaching and scientific research activities is to serve the development of local economy, society and industry. The research work of scientific research teams in application colleges and universities are mostly focused on application-oriented research. The teachers play a very important role in the promoting of transformation and application of achievements.

2.3. Playing an important role in innovation and entrepreneurship support system

The raise of "Mass Entrepreneurship and Innovation" strategy is to stimulate the vitality of entrepreneurship and innovation. On Oct 12th 2021, the General Office of the State Council issued *the Guiding Opinions on Further*

Supporting the Innovation and Entrepreneurship of Higher Schools Students ("Opinions"). The Opinions pointed out that college and university students are the new force for mass entrepreneurship and innovation, and it is of great significance to support them in innovation and entrepreneurship. As a place where high-quality talents gather, the college and university teachers' team plays an important role in the whole process of further supporting students' innovation and entrepreneurship. And, this is especially important to the teachers in Application colleges and universities.

3. THE STRATEGIC ANALYSIS OF APPLICATION COLLEGES AND UNIVERSITIES TEACHERS IMPROVING "TEN EDUCATION SYSTEM" CONSTRUCTION

Application colleges and universities teachers play an important role in the construction and improvement of " ten education system", especially in the curriculum, scientific research and practice education system. In this article, we mainly introduce the role of teachers in the construction of these three aspects and how do they promote the construction.

3.1. Deepening the reform of "Curriculum Ideological and Political", improving the curriculum education system

Ideological and political construction in colleges and universities is needed by the times, majors and talents. The curriculum ideological and political construction needs to realize the new dimension of teaching objectives, new depth of teaching content, new perspective of teaching methods and new height of teaching effect, so as to achieve the fundamental goal of talent training, discipline construction and high-quality and all-round development of students[2]. Teachers should give full play to the main role of curriculum education, constantly innovate in improving classroom teaching design, make full use of the ideological and political education function carried by the curriculum, and unify curriculum ideological and political education and professional knowledge education in the new era.

3.2. Strengthening innovation and entrepreneurship education, innovating the scientific research education system

The reform of innovation and entrepreneurship education is an urgent practical need for colleges and universities to cultivate high-quality talents. We should deepen the reform of innovation and entrepreneurship education in colleges and universities, run through the whole process of talent training, so as to achieve more sufficient and higher quality employment for students[3]. Colleges and universities should strengthen the training of teachers' teaching ability and quality of innovation and entrepreneurship education, improve the curriculum system, and further promote the reform of practical teaching. Teachers should innovate teaching design, promote the organic integration of professional knowledge education and innovation and entrepreneurship education, encourage students to establish innovation and entrepreneurship associations, lead them to participate in competitions, promote the transformation of scientific research and teaching achievements, and thus improve the quality of talent training.

3.3. Adhering to the combination of theory and practice, improving the practice education system

In addition to promoting the improvement and innovation of the practice education system with the school as the main body, teachers should also actively integrate the practical resources around them, relying on high-tech zones, industrial parks, enterprises and institutions, patriotic education places, etc., to create conditions for the expansion of diversified practice platforms and entrepreneurship bases. On top of that, We should continue to enrich the practice content, innovate practical forms, and help students to carry out extensive social practice activities such as social research, volunteer services, work-study program and scientific and technological inventions.

4.CONCLUSION

Teachers in application colleges and universities should adhere to the "student-centered", follow the regulations of ideological work, teaching and student growth, give full play to the curriculum, scientific research, practice, culture, network, and psychological education function, improve the management, service, funding, organization education mechanism, to promote "then education system", contribute our own strength in cultivating the youth who have "four service" consciousness and "four correct understanding" of the new era.

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Talking about the Application of Tea Culture in the Management of Class Moral Education in Vocational Schools

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Abstract: Tea culture carries a rich education function. Integrating tea culture into the moral education management of vocational schools, it can not only carry forward the tea culture, but also make the moral education work twice the result with half the effort, reflecting the leading role of tea culture and the value of education.This paper is that the author combines the practice and discusses the tea culture function of moral education in the class moral education management of vocational schools, and provides reference for improving the class moral education management of vocational schools.
Key words: Tea Culture Vocational School; Class Moral Education; Management And Education

I. THE DEVELOPMENT HISTORY OF TEA CULTURE

Our confidence in traditional Chinese culture comes from the understanding and recognition of traditional Chinese culture, and comes from the understanding and recognition of traditional cultural ideas and value system. Tea originated in ancient China and spread in the western world. The harmonious tea culture integrates the culture and thoughts of Chinese Buddhism, Taoism and Confucianism. It is extensive and profound, rich in connotation and long history. It is one of the main representatives of Chinese traditional culture.

Tea, also known as 'Ming', 'Da', was mainly produced in Bashu in ancient China. It was widely spread from south to north and west to east. It has developed into one of the three traditional cultural drinks in China and even the world.Lu Yu in the Tang Dynasty, 'The Tea Classic Six Drink ":' tea is drinking, originated in Shennong, heard in Duke Lu and Zhou '.In other words, tea was originally served as a drink from Shennong, and it spread during the time of Duke of Zhou, the first sovereign of the Zhou Dynasty.By the Tang, Song Dynasties, Ming and Qing Dynasties, tea had become an indispensable necessity for people's work and daily life (namely firewood, rice, rice, oil, salt, sauce, vinegar and tea), commonly known as the saying of "tea as food, which is no different from rice salt".To put it simply, the long history of tea culture can be seen as an epitome of the development of China's 5, 000 years of civilization.

II. THE OVERALL STRUCTURE AND CONTENT OF TEA CULTURE

Some scholars have analyzed that the overall structure of ancient Chinese tea culture and traditional Chinese medicine tradition should be "one body and two wings", that is, a whole body with Chinese Buddhism, Taoism and Confucianism as the core, while Chinese medicine and modern tea ethics and tea ceremony are the two core wings. These two wings are the ingenious comprehensive application and successful integration of Chinese Buddhism, Taoism, Confucianism, Chinese medicine, tea ethics and tea ceremony. Traditional Chinese medicine nourishes the body, cultivates the heart with tea morals, and enjoys the tea ceremony. The body and mind are united, the value is shared, and the unity of Buddhism, Taoism and Confucianism is returned.

There is virtue in tea and Tao in art. There are three realms of tea culture. One is to drink tea: only focus on the material properties of tea, and treat tea as drinking water. The second is tea tasting: because drinking tea is not just drinking water, it is the enjoyment of beauty among various senses of sight, hearing, touch and taste, which is called tasting. The third is to gain the Tao: drinking tea is like life, tea tastes character. The famous Chinese tea expert Mr. Zhuang Wanfang proposed "Chinese tea morality", and its cultural content is mainly "incorruptibility, beauty, harmony and respect". The explanation given by Mr. Zhuang is: "Lian" means "clean, diligent and thrifty"; "Mei" means "delicious, recreational"; "Harmony" means "honor and honesty"; "Jing" means respect and help others.The tea ceremony of Cha De fully interprets the connotation and essence of Chinese traditional tea culture.

III.THE PUBLICITY AND EDUCATION FUNCTION OF TEA CULTURE

Culture to transform people, cultural education.Chinese tea culture plays an imperceptible role in education and edification of people's quality. Cultural education and edification can not only make people cultivate good heart, but also make people cultivate good quality and cultivate good temperament. As the so-called "sneak into the night, moisten things silently" and make people invisible.

Traditional Chinese tea culture has rich connotation, from traditional handicraft facilities, to daily use of utensils; from ordinary living utensils to piano, music and calligraphy, tea culture includes it.Colleges, vocational schools is important Chinese tea culture propaganda position, through the popularization of culture and carry forward Chinese tea culture, can influence and cultivate students 'ideological personality quality, the pursuit of values, character, cultural values, moral cultivation, aesthetic life, influence and cultivate students' positive psychological state, behavior, image etiquette shaping, communication ability, interpersonal ability, cooperation ability, students' professional quality and future planning

of life.By spreading Chinese tea culture and learning Chinese tea culture, you can 'nourish the heart with tea', 'respect guests with tea', 'cultivate virtue with tea', 'cultivate honesty with tea'.

1.Repair heart and care

From the point of view of psychological state, vocational school students have strong self-awareness, poor psychological concentration, prone to impetuous, lack of sense of security.Learning tea art, learning tea ceremony, knowing the tea ceremony, can cultivate students 'habit of quiet learning, cultivate students' calm and relaxed mood.Because tea is mild, tea drinking can provide health care, relieve inner anxiety, and relieve the spirit of stagnation.

By learning tea culture, enhance cultural confidence, cultivate the humanistic spirit of humility and comity, tolerance and open-minded, peace and tranquility, learn to slow down, study, concentrate on work, perception and reflection, purify the heart, shape character, sublimate personality, and live out the wonderful and value of life.

2.Aesthetic and educational function

Tea tea activities are suitable for all young to enjoy elegance and customs.Tea activities is not only a kind of life art, but also an artistic life.Its contents include: dance, literature, painting, books, music, clothing, flowers, etc.By learning traditional tea art, students in vocational schools can further improve their aesthetic and art qualities.

3. Enhances interpersonal relationships

In the network era, vocational school students increase online communication, reduce face-to-face communication, lack of interpersonal skills, and weak teamwork ability.With tea and tea sharing can promote each other to open their hearts, communicate and gather emotions, promote value recognition, and enhance interpersonal communication ability and team integration ability.Vocational school students can learn to treat guests from tea worship tea, learn to be grateful and tolerant, respect and love each other, and coordinate interpersonal relations.Through the tea culture activities, we should pursue the harmony between the heart and the outside world, achieve a suddenly enlightened state of mind, promote the improvement and maturity of psychological quality, and cultivate a positive and healthy sunshine mentality.

4, Tea ceremony education function

The etiquette of traditional Chinese tea art is a traditional ceremony and ceremony that students should strictly follow in the process of conducting traditional tea activities and tea art services.Learning the etiquette of traditional Chinese tea art requires students to master the standards of traditional Chinese tea art etiquette, tea procedures, steps, rules of tea culture etiquette; but also need students to understand the commonly used tea ceremony and different Chinese traditional tea gifts, such as bowing, tea ceremony, palm ceremony, tea ceremony and so on.

Learning the etiquette of traditional Chinese tea art will help encourage students to fully experience the traditional behavior and culture of respecting ritual in a strong sense of ceremony, and help to improve and cultivate students' quality of etiquette and the shaping of image.

IV. APPLICATION OF TEA CULTURE IN CLASS MORAL EDUCATION MANAGEMENT

The educational training of talents cannot be separated from three kinds of educational environments: family education, school education and social education.Among them, school education plays a decisive role in the growth of talents, and the most important organization in school education is the class.The application of tea culture to the moral education management in the class can get twice the result with half the effort.

1. Tea culture is integrated into the layout of the class living environment of the school.School class living environment layout design to fully combine the Chinese tea culture, the living environment style to fully achieve natural nature, quiet and elegant, refined, plain and pure and fresh, and fully join the elements of tea culture, blackboard newspaper layout design, humanized layout, warm classroom light, wall decoration color, etc., let every object contains tea culture, every wall will speak, create a very elegant place for learning.

I served as the head teacher of a new class in September 2017, and when I arranged the class culture, I was interested in introducing tea culture.On the wall on the side of the classroom is the student style display column. Through discussing with the class cadres, we posted a picture of the ancient tea tree, selected the learning star and the star of discipline every day, and then posted their photos on each branch, so that each student can establish the consciousness of sending new buds and new tea for the big tea tree.Above the blackboard at the back of the classroom hung posters with "Jing", "Jing", "Jing", "Jing" and "He" brush characters.Make class convention: a clean environment, quiet behavior, respect teachers, get along harmoniously with students, help each other more progress every day.Let the students in the daily life are imperceptible practice of the concept of tea culture.

2. Tea culture courses should pay attention to the integration of teaching and education in tea culture courses.In the tea art service course of my class, I not only taught students the kind of tea, the nutritional value of tea and tea making technology, but also cultivated their etiquette through tea art performance.Such as: ceremonial etiquette, bowing ceremony, serving tea ceremony, etc.Students not only learned the knowledge of tea art culture, but also learn to treat guests from respecting tea and tea, learn to be grateful and tolerant, respect and love each other, humble and polite.

3.school held a morning reading report performance at the end of the semester. After discussing with the students, our class selected to recite the commentary of oolong tea art.Every morning, the students wear classical tea art clothes and read the tea art commentary in unison under the background of

elegant guzheng music. Under the influence of tea culture, they seem like integrated into a work of art, one by one like ladies and gentlemen, elegant and peaceful.

4.Has set up a tea art performance society to give full play to the educational role of the tea art cultural society.Through the establishment of school tea art performance club, can be some students interested in Chinese traditional tea culture all together, through their radiation and drive to promote the spread of tea culture, play the education function, can also through the club cultivate students' professional interest, explore talent, create reserve force for the development of tea culture.

5.Through the tea art competition, education transformation of underachiever, establish its self-confidence.A female classmate in the class was relatively withdrawn, and I encouraged and persuaded her to participate in the school tea art competition.After hard practice, her group won the third prize in the school.She found confidence from the success of the match and gained a friendship in the match.

6.Carries out the role of dormitory tea culture environment education.The concept of tea culture is integrated into the cultural construction of each dormitory, making the dormitory environment as warm and natural as home, and the relationship between the dormitory members is more harmonious.

V. CONCLUSION

To sum up, tea culture has an important leading role in the class moral education management, so, as educators we need to clear according to the school education goal tea culture import content, promote the use of tea culture in class moral education management, relying on the tea culture for students' ideological education work, to ensure that the class can faster and better development.

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The Application of Internal Knowledge Management Tools by Using CRM Model

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Abstract: With Knowledge management is the transfer of knowledge to people in need. It is the conscious strategy of the organization. Sharing practice-based information in different ways to improve organizational performance. In addition, knowledge sharing is a platform for employees to exchange knowledge and share knowledge within the organization.
Keywords: Internal knowledge management; CRM mode

1. INTRODUCTION

Successful companies rely more on knowledge management and use knowledge to enhance competitive advantage. However, according to the speed of innovation, companies need to continually update knowledge to create more value for companies, employees and customers. Therefore, learning has become the fundamental guarantee for the survival of an enterprise. The ability of an organization member to acquire knowledge which becomes the core skills of the organization (amine, 2012). In addition, knowledge is the basis for the company to obtain the competitive advantage which is an essential scarce asset of the company.

2. INTERNAL OF KM

Knowledge management is the process of obtaining the competitive advantage by identifying, sorting, transferring, and managing knowledge. Including external knowledge and internal knowledge (Gao, Li and Clarke, 2008). External knowledge is related to the knowledge owned by the organization and the knowledge of associated institutions, such as suppliers, users, and other enterprise networks in the same industry (Hall, 2006). The organization's own knowledge is internal knowledge and can be divided into five forms:

Forms	Definition
a) Personal knowledge	Past experience and training.
b) Interpersonal relationship	The network of interpersonal relationships
c) Database	Standardized knowledge is stored in a structured way.
d) Work flow and Support System	The required support system to completes the task.
e) Products and Services	Organization's knowledge image.

Practices in the organization avoid the department to avoid duplication in work. In order to achieve effective organizational practice, the correct design of the work, the division of responsibilities will build employees desired specifications (Wickert and Herschel, 2001). It ensures professional tasks and applies to the theory of learning curves. Over time, the work tasks of employees become faster that can produce more products in less time than before. However, specialization may make employees tired of work and dissatisfied. To be overcome through job rotation and training to enrich skills.

Internal knowledge management is essential to group organizational functions based on the product, work, and location. Functionality refers to the situation where the organization is broken down into departments with different functions (Beijerse, 2000). The organization decide to focus or decentralize function. Furthermore, completion of all functions in each branch office, or issue all orders to the branch office in the headquarters, which is also adopt hybrid systems. It makes the job simple and easy to monitor the task. However, this may lead to a long-term command system, slow decision-making and manager rotation because tend to focus on the areas supervise will lead little understanding of the regions to reduce dependence on external talent.

3. COMMERCIAL CONFLICTS AND FACTORS THAT LEAD TO CONFLICT(INTERNAL)

The main causes of workplace conflicts:

Poor management	delayed delivery within departments that share information and materials
Unfair treatment	conflicts between employees and management
Changes in management and organizational structure	Changes occur when management changes and new rules and ways of doing things are introduced.

CRM is mainly an enterprise intelligence system to support marketing, Sales, and Service in the enterprise value chain (Bojanowska, 2017). In addition, customers can fully interact with their chosen path to achieve an increase in satisfaction. From a different point of view, the customer relationship management system distinguishes customers and combines the relationship between management companies and customers to achieve the highest level of satisfaction and at the same time efficiently attract new customers (Wang et al., 2013). Therefore, in the SECI model, belonging to the externalization. Convenience, thus providing a wide range of audience.

4. EMPIRICAL STUDY OF FACTORS AFFECTING THE ADOPTION OF TECHNOLOGY.

When adopting a technology, it needs to evaluate whether the technology is cost-effective, able to meet market demands, meet customer needs, and be flexible and easy to use. The company is facing complexity and flexibility issues. The drawback of CRM is also lack of flexibility (Bojanowska, 2017). The reason is that they cannot integrate all departments into a central system which can reduce recurring costs, and the system is difficult to understand (Wang et al., 2013). To lead of conflicts, so it requires a deep understanding of the factors that influence adoption.

Technology adoption measures the degree to which companies use these technologies. It can be assessed by assessing the adoption rate or the degree of adoption. The adoption rate is measured by the amount of time required by a certain number of people (Ribiere and Tuggle, 2010). The degree of adoption depends on the number of technologies used and the number of people using them. However, in developing countries, the slow adoption of technology is mainly due to the lack of appropriate policies, lack of machinery, lack of technical skills, lack of financial support and inadequate communication methods (Carneiro, 2000). Therefore, with the current trend, combined with ERP and CRM knowledge management tools, complimentary use, improve knowledge sharing and system management. In order to enhance competitiveness and social value. In the future development, which will combine the advantages of innovation and integration tools to create the online resource platform that is most suitable for the Bandon Group for remote management and operation.

5.CONCLUSION

The company faces integration issues that constitute the risk of internal conflicts within the organization. A complete system needs to be customized to suit the operation, which should consider the identified factors. The system should also be carefully chosen because of reducing the risk to business operations.

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Research on visual Design of Cantonese Opera Modeling elements

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Abstract: Cantonese opera is a valuable cultural heritage in Lingnan, China, and it is also attached to internationally.Nowadays, China attaches great importance to the inheritance of excellent culture, and Cantonese opera, as a manifestation of local culture in Lingnan region, plays a self-evident role in the traditional cultural system.At the same time, Cantonese opera also provides rare materials for the development of tourism products in Guangdong.If we extract the visual design creativity from the cantonese opera modeling elements and integrate it with tourism products, it will become a new means to promote the cultural inheritance and promotion of Lingnan region, and also better develop the tourism industry in Lingnan region.
Keywords: Guangdong Cantonese Opera; Modeling Element; Visual Design

1. INTRODUCTION OF CANTONESE OPERA IN GUANGDONG

Guangdong Opera has always been loved by people.It reflects the charming Lingnan culture, the form is rich, and the cultural connotation is profound. It is popular in the world.The visual design of the elements of Cantonese opera is also a reflection of the unique charm of Cantonese opera.If we can study it and use it to tour product design and development characterized by Lingnan culture, it will become a very bright "element" in tourism products.It is also possible to effectively promote the development of cultural creative industry and tourism.

This article analyzes the visual design of Guangdong Cantonese model elements, some insights are proposed in different respects.

Cantonese opera, it also called the Guangdong Opera, Guangdong Dada, which is the largest drama of Guangdong and Guangxi dialect area.It originated in Foshan and is sung in Cantonese dialect, one of the traditional Operas of the Han nationality.The Cantonese opera is formed in Guangdong, and it has been introduced to Guangxi, Hong Kong, Macau, Taiwan. There are also Cantonese opera performances in China and other countries in Southeast Asia.One of the world's intangible cultural heritage.

Before 1912, the Cantonese opera performance has only been used in Guangzhou dialect. The performance system is getting more and more perfect, and began to wear an exploration of the migrant song in the performance, and change the fake singing as "flat throat" singing.Since 2003, the governments of Guangdong, Hong Kong and Macao have designated the last Sunday of November as Cantonese Opera Day to broaden the audience, promote and preserve Cantonese opera.May 20, 2006, it was included in the first batch of national intangible cultural heritage list, its number iv - 36.On October 2, 2009, Cantonese opera was listed on UNESCO's Representative List of intangible Cultural Heritage of Humanity.

II.THE MAIN IDEAS OF VISUAL DESIGN OF CANTONESE OPERA MODELING ELEMENTS

Next, we focus on Guangdong Opera and use the method of refining plane visual elements[1], analyze the main ideas of visual design of its modeling elements.

Currently, Guangdong Cantonese drama is not only loved in a large population, but some young people have also had a strong interest in Guangdong Cantonese opera.We need to understand that if we want the younger generation to better understand and recognize Guangdong Opera, we must innovate the form of Cantonese opera by focusing on their aesthetic taste.In different Cantonese operas, some have more visual beauty, or some have more humorous themes and modeling elements.If we can extract these contents through relevant creative design and make them into exquisite articles for daily use and tourist souvenirs, we can further arouse their appetite for Cantonese opera.

(I)Choice elements of Cantonese drama characters

When extracting visual elements, we need to follow the guideline of having a clear purpose and system, rather than blindly selecting one or a few characters.Otherwise, it is easy to cause messy, then the resulting product is difficult to form.

In this regard, we will be discussed in terms of two Cantonese opera characters.The first is the famous actor of Cantonese opera -- Red Line girl, as the research object.The second is the "ugly" image with a sense of humor and story, as the creation object. In order to meet the taste of contemporary young people, it is specially designed as a cartoon image.

(II)Methods and processes for extraction and design

1.Methods of extraction and design

As the "Master" level of Guangdong Cantonese Opera, She can be said to have created the most influential style of singing in the history of Cantonese opera - red school art.This contribution in the history of Cantonese opera is huge.

In the process of creation, we specially selected four representative plays of red School art -- Zhaojun Out of The Gate, Mountain Village, Guan Hanqing and Li Xiangjun, and selected some classic characters from them.

2.Creation process

First, from these classic characters, choose a relatively representative picture.Secondly, observe and determine the specific characteristics of the character image, and outline the general image with a pencil.Again, through the computer to scan the pencil draft, using Coreldraw

software outline and color. Finally, for the parts that could not be trimmed in place before, post processing was carried out through PS software.

The second part is also the most difficult part.Because if we don't have a complete grasp of the content of the story, it is difficult to fully grasp the temperament and charm of the characters.Although it is designed as a cartoon, the connotation of the character must be reflected from it, with a sense of humor and character temperament, rather than just a far-fetched arrangement of a cartoon head.

In the "Mountain country", by the red line girl to play the company commander, image reflects the valiant female soldiers and their great feelings to actively participate in the defense of the motherland.The pose of the character of the character, the fruitful personality has made a vision of vision.

When we design the images of five leading maids in the above classic dramas, we can combine these images effectively, equipped with brief text and concise titles.In this way, a lingnan local customs as the theme of the postcard design success.Pay attention to the colorful color in the design.The "red" character and the image of "pipa" are integrated, and the "red star" is embedded in the "female" character, in order to reflect the elements of revolution.This not only the title looks more rich, but also make postcards more plot sense, it will to a certain extent to bring a good visual aesthetic feeling[2].

(III)Extraction and design points of visual elements of ugly characters

Another theme of Cantonese opera is the creation of Ugly Life.Choose three Cantonese opera ugly classic images, the ugly image is humorous and lively, which makes people laugh when they see it. Combining with modern cartoon image processing techniques, it is easier to arouse the interest of the young generation.The creation technique also uses the extraction of typical facial features and detailed description of vivid body posture, combined with pencil draft and graphic software, to create the following three lovely ugly images.

Finally, these three ugly images with their own characteristics were integrated together, with a lively pink as the background color, accompanied by text and title design. Combine into a "ugly" classic image postcard."Ugly" two word title and caption are using funny shape, with ugly funny feeling.

In addition, in addition to postcards, the author also used the ugly images he created. We want to design two dolls, they are "ugly pillows" and "ugly hanging".The ugly pillow continues the ugly image extracted from the previous article, and summarizes the basic image of the ugly with a few simple large color blocks. The body size of the pillow is moderate, and it will have a humorous effect when young people hold their hands and take photos. It is also comfortable to use it as a cushion or pillow, so the doll has both practicality and aesthetics.

The creative concept of ugly hanging dolls comes from the cleverness of the hanging function with the "small braid" of the ugly head, achieving the effect of practical and humorous highness.If the doll hangs on the backpack or the bag, it will lead to the eye-catching and created a funny atmosphere.

III\WHAT SHOULD BE PAID ATTENTION TO IN VISUAL DESIGN

Through the above design methods, the visual elements of Cantonese opera characters are extracted and applied to the design of modern products, so as to achieve the purpose of inheritance and innovation of intangible cultural heritage art. The author summarizes the following design and creation methods:

First, the visual vision element selected must be purposeful and systematic, so that product creation of the later use elements, especially the series of product creations, it will be an orderly and systematic to avoid blind design.

Secondly, when refining and performing a plane effect on the character image, you must first understand the storyline background of the character's role, in order to portray the charm of the characters in place.

Thirdly, in product creation and design, if the functionality can be integrated into the image of the visual element itself, it will effectively enhance the fun of the product.

Finally, the design of the product must comply with the concept of "easy production, reducing cost" and other concepts of industrial production, avoiding high costs such as excessive process techniques.After all, the product is not a handicraft, and it must be a sense of design and convenient production, and the cost can have a wide range of markets and adapt to the level of consumption.

4.CONCLUSION

Cantonese opera is the precious cultural heritage of Lingnan region in China. It embodies the charming Lingnan culture with rich forms and profound cultural connotations. It is widely popular all over the world. As for the visual design of elements of Cantonese opera modeling, if we can make full use of it in the design and development of tourism products featuring Lingnan culture, it will become a very bright "element" in tourism products. It is also possible to effectively promote the development of cultural creative industry and tourism.

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Study On Effective Classroom Training of Machining Specialty

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Abstract: At present, China's economic construction needs many technical practical talents, and higher vocational schools are the main positions of national delivery technology and practical talents, and their teaching directly affects students' professional skills. Machining is a strong course in theoretical and practicality. In the course teaching, in addition to professional knowledge learning, we must pay more attention to practical teaching, and effectively improve the mechanical processing practice of higher vocational students. In this regard, the paper discusses the innovation strategies of practical teaching of machining course in higher vocational colleges based on the shortcomings of practical teaching of machining in current higher vocational schools.
Key words: Machining; Training; Effective Classroom

I. ANALYSIS ON THE SIGNIFICANCE OF TEACHING REFORM OF MACHINING PRACTICE IN TECHNICAL COLLEGES

At present, due to the characteristics of the current stage of development, students majoring in automatic machining and basic machining are required to have higher skills.So, in order to adapt to the needs of talent markets and social development, in the process of teaching development, the mechanical processing major in higher vocational colleges should reform the practical training teaching and construct a more efficient and scientific teaching mode, so as to cultivate talents in line with the needs of social development.Fundamentally improve the employment rate of students majoring in machining.

With the rapid development of our national economy, we have attached special importance to the development of machinery manufacturing industry, which occupies an important position in the current and future development process, for which we have increased financial resources and political support.With the rapid development of industrial modernization, the demand for highly skilled labor in the machining industry has increased not only in terms of quantity but also in terms of professional skills.The necessary technicians can better control advanced production equipment and high levels of skills to achieve high value-added products.However, the current teaching and practical learning of machinery processing in China's technical institutions is not very adapted to the development needs of enterprises.This leads to the shortage of high-quality talents in mechanical processing industry and technical colleges, which is difficult to meet the production needs of enterprises. It has a significant impact on the development of China's mechanical processing industry and brings serious problems to the employment of talents in colleges and universities.Therefore, this paper briefly analyzes the teaching reform and practical training in mechanical processing in technical schools, in order to cultivate high quality talents in line with the requirements of enterprises.

II.PROBLEMS EXISTING IN MACHINING TRAINING TEACHING IN HIGHER VOCATIONAL COLLEGES

(I)The teaching content is single and the teaching mode is traditional

The teaching contents and training subjects of machining specialty in higher vocational colleges need to be improved.Traditional teaching content pays attention to the cultivation of student's basic skills and it has strong professionalism, but it is not enough to translate the training skills to training skills.The training content is single, and it is not possible to meet the needs of machinery processing professionals.Although the practical training teaching model is constantly improving and perfecting, but the practical training goal is not clear, it can not stimulate students' interest in learning.

(II)The training ability of teachers needs to be improved, and the overall quality is not high

Most high-skilled personnel are reluctant to teach vocational schools, where people have been outside the year for many years.Another reason is that young teachers go straight from school to vocational schools.They have no skills and experience in the actual training, but also lack the theoretical knowledge that is not conducive to practical teaching.Due to the shortage of teachers, it is especially difficult to provide practical training in higher vocational courses in mechanical processing.Even if it is reluctantly provided, it will not have an effective teaching effect on students.Therefore, vocational schools should pay more attention and take appropriate measures to solve this problem.

III. PRACTICAL TEACHING INNOVATION STRATEGY OF MACHINING COURSE IN HIGHER VOCATIONAL SCHOOLS

(I)Innovate the content and form of machining practice teaching

In mechanical processing practice teaching, scientific practice content and form are core conditions for ensuring practical effects.Therefore, to change the old and backward practice content and form, and actively improve and innovate is the inevitable way to carry out the machining practice teaching smoothly.First of all, in terms of practical content, higher vocational schools can not limit the content of practical teaching to textbooks, because the content of textbooks is updated slowly and

outdated, which does not meet the needs of students' career development.Higher vocational schools should comply with the times, timely understand the current demand of mechanical processing talents, such as demand, work and technical side.Then adjust the content of practical teaching in time according to the information, formulate scientific practical teaching plan, set up corresponding practical courses, to ensure that students can improve their practical skills in a targeted way, and lay a foundation for future employment and development.Secondly, innovation practice teaching form.In order to change a single problem in the form of practical teaching, teachers can introduce new teaching methods such as multimedia.For example, when explaining mechanical processing knowledge and operational skills, multimedia can be displayed to students through three-dimensional pictures or 3D animations, so that students can make more vivid and intuitive reception knowledge and improve practical teaching efficiency.In addition, teachers can also innovate teaching organization forms, such as introducing hierarchical teaching, group cooperative learning and other modes, so as to enrich practical teaching and enhance students' interest in participating in practice.

(II)Pay attention to the improvement of teachers' practical teaching ability

Although the teaching of continuing education is completely entrusted to students, there is no teacher's guidance, but the educational goal cannot be realized, and the teacher is an important existence in the process of continuing education.Therefore, teachers play an important role in practical training teaching, only qualified teachers can guarantee the quality of teaching.Due to the limited number of teachers, vocational education institutions pay special attention to the overall quality of teachers when recruiting teachers, and can only recruit teachers if they meet the required standards in all aspects.With regard to in-service teachers, schools can regularly organize teachers training, and organize research seminars to strengthen and improve teachers' teaching and vocational skills.At the same time, teachers should take the initiative to improve their overall quality and ability.Due to the characteristics of the manufacturing industry, teachers who provide practical training have ideology and requirements that make them lifelong learning.[8]By requiring teachers to constantly develop their own knowledge to meet teaching and learning needs, they can also observe the teaching content and teaching process of excellent teachers to gain experience, learn from each other and cooperate with each other, so as to effectively improve.

(III)Expand the students' thinking space and improve their imagination

In order to improve the quality and effectiveness of mechanical transformation of higher vocational practice training, it is necessary to pay attention to cultivating students' imagination and thinking.In order to enlarge thinking space and cultivate students' imagination, teachers can improve teaching efficiency from the perspective of teaching practice and from every aspect of life.For example, students are encouraged to consider chess trends and the impact of the loser's position on the situation in a variety of ways when playing chess, or to develop sound strategies based on the opponent's situation when participating in competitive sports.Targeted life training can not only help students cultivate good thinking skills, but also stimulate students' interest and enthusiasm to improve the teaching quality of practical training.

(IV)Carry out depth school-enterprise cooperation

At present, most of the training and teaching venues and equipment in higher vocational schools are difficult to meet the needs of running schools. Due to various reasons, the training equipment is not updated in time.Effective solutions to this situation are to further strengthen cooperation between school enterprises.On the one hand, when students enter enterprises, they can not only get in touch with the most advanced mechanical equipment in the industry, but also understand the real working situation and requirements of relevant positions in the industry, which can improve their understanding of future jobs.The training masters of the enterprise can combine the implementation of the relevant training knowledge, the history and development prospects of the industry, so that students have established their clear learning goals and stimulate students' learning motivation.The school training teachers can adjust the teaching plan and innovate teaching methods according to the progress of the school-enterprise cooperation.For example, when the training teachers are teaching CNC turning, they can compare the advanced CNC lathes of enterprises and the traditional horizontal lathes of the training room of higher vocational schools.Let students understand the advancement of CNC lathes in the process of craftsmanship, the difference between the normal lathe and CNC lathes and the theoretical and practical knowledge points that operate the CNC lathe.On the other hand, vocational schools can invite enterprise technicians into the classroom, and carry out communication with the school's training teachers.This helps training teachers to improve the training program, improve training teaching methods, so that training teaching is closer to the real situation of the enterprise, helping students' skills, allowing students to adapt to corporate positions faster.Therefore, strengthening school enterprises can effectively improve the quality of training teaching in higher vocational machinery.

4.CONCLUSION

In summary, the improvement of mechanical processing practice in higher vocational schools is significant, and it is the basis and guarantee of students' future employment.However, there are still many problems in practical teaching.Therefore, teachers should attach importance to the innovation of machining practice teaching and improve it from the aspects of practice concept, content, form, platform and teachers.Continuously improve the quality of practice, enhance students' expertise and skills, and deliver high-quality technical practical talents for the state.

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Reconstruction design of environmental facilities in old communities in Dongguan based on Aging Society

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Abstract: China is now carrying out comprehensive transformation of old communities, and Dongguan is also actively promoting the transformation of environmental facilities in old communities. In the transformation process, many communities pay different attention to the transformation. Some pay more attention to the renewal of community infrastructure and lack of consideration for the living needs of the elderly. Now that China has entered an aging society, it should strengthen more convenience for the elderly to live The facilities and equipment suitable for the residence of the elderly should be invested more in technology and cost, so as to improve the living community environment of the elderly qualitatively.
key word: Old community; The aged; Transformation of environmental facilities

1.INTRODUCTION

The 4th Dongguan urban and Rural Planning Committee held its 4th meeting, deliberated and approved the rural construction plan of Dongguan (2018-2035). In the future, 553 villages (communities) in Dongguan will be built into "demonstration area of high-quality urban-rural integration and charming residence in the bay area". The beautiful community action mainly focuses on the needs of customers who have stayed in the old community for more than 5 years, promotes community transformation, improves the quality of the park and improves the lives of residents. Some enterprises are also involved in the transformation of communities, mainly including water seepage and damage of external walls, transformation of fire pipe network), intelligent equipment, maintenance and transformation of ground and wall of underground garage, repair of street lamps, vehicle and pedestrian roads, supplement and repair of return line facilities, green planting and planting in the park, repair of old sports and amusement facilities, etc.

2. CURRENT SITUATION OF OLD COMMUNITIES

2.1 insufficient barrier free facilities

Restricted by the ideas of the times and building materials, the current community lacks barrier free facilities, which is more obvious for more and more community withdrawals of the elderly. For example, more steps and inconvenient wheelchair access have brought many hidden dangers to the action of the elderly.

2.2 the accessibility of public space design in the community is poor.

In terms of appearance and layout, we pursue novel modeling, and let the public landscape and some activity spaces adopt the method of sinking or lifting the ground, so as to make the overall modeling more novel and beautiful, which makes it difficult for wheelchairs and carts to pass through, which hinders the use frequency of some elderly people.

2.3 insufficient types of communication places and lack of aging facilities

There is a general lack of communication places in the residential area, such as public space for the elderly to walk, exercise, rest and communicate. Even if there is such a space, the type is relatively single and lack of diversity. In terms of public facilities, most residential areas have insufficient or unreasonable public facilities.

2.4. The landscape design lacks practicability

In order to pursue visual beauty and high greening rate, residential areas generally carry out large-area greening design, usually equipped with small trees, shrubs and green space, but this landscape design will hinder people's sight and affect people's communication. But the elderly have no other choice. They often gather and communicate in such places. At present, most public spaces appear in the form of central square. Although the winding path is very decorative, it is not practical and is not conducive to the passage of wheelchairs for the elderly.

3. THE COMMUNITY MEETS THE NEEDS OF THE ELDERLY

Meeting the needs of the elderly refers to their physical and mental health needs, communication and entertainment needs and spiritual and cultural needs. In order to build an aging residential public space, we need to change the conversion conditions of different types of public activity space from these three aspects, so as to lay a solid foundation for the aging transformation of residential public space.

3.1 physical and mental health needs

Due to the aging characteristics of the elderly, ensuring the safety of the elderly has become the primary demand of community transformation. The safety of the space outside the residential area is related to whether the elderly have enough confidence and enthusiasm to carry out outdoor activities. In terms of mental health, the elderly have the needs of sense of belonging, neighborhood relationship, sense of security and so on. Most old people need to live in their original homes, because it is essential to be familiar with the environment and care for friends and neighbors. Such a living and communication environment can make the elderly have a sense of belonging and security, and can alleviate the elderly's sense of loneliness and maladjustment, strangeness and loneliness, a sense of loss to the surrounding environment

to a certain extent.

3.2 communication and entertainment needs

Neighborhood communication is an important way to establish the sense of belonging and realize self-identity of the elderly. With the change of social roles of the elderly, they often have a sense of self doubt, loss and loneliness. The best way to alleviate these negative emotions is to establish good neighborhood relations and share life experience and cultural cognition. Therefore, the design of communication places in residential areas should pay attention to the communication and entertainment needs of the elderly in public space. In order to attract the elderly to travel, the public space in the residential area should provide rich and colorful leisure activities and space.

3.3 spiritual and cultural needs

In addition to meeting the basic needs of physical and mental health, communication and entertainment, the elderly also need to pay attention to the needs of spiritual culture. The spiritual and cultural needs of the elderly mainly include historical and cultural needs, religious and cultural needs and folk cultural needs. These requirements require that when designing the public space of residential area, we should pay attention to giving the cultural attribute and spiritual comfort to the space for the elderly.

4. TRANSFORMATION STRATEGY FOR AGING SUITABILITY OF PUBLIC SPACE IN RESIDENTIAL COMMUNITY

4.1 safe and barrier free walking environment

The primary problem of community aging transformation is the safety of the elderly, which is the premise and basic requirement of aging transformation. Safety issues should be systematically considered to ensure a safe and barrier free walking environment for the elderly.

4.1.1 transfer of personnel and vehicles in the outer space of the residential area

It is unrealistic to completely avoid the diversion of people and vehicles in the existing community, but the intersection and mixing of pedestrian flow lines and vehicle flow lines should be avoided as far as possible, so as not to affect the internal life of the residential area. For example, carry out traffic control at different times, open parking lots at the entrances and exits of residential areas, re plan traffic flow routes, and try to avoid mixed flow of people and vehicles. In addition, the driving speed of vehicles in residential areas shall be limited, which can be achieved by setting roads, adding green belts, setting speed bumps, etc.

4.1.2 improve accessibility in walking environment

Most of the elderly complete their daily activities by walking, and the scope of daily activities of the elderly is gradually reduced to the community. Therefore, we should pay attention to the community walking system and its supporting barrier free design. First, re plan the walking system of the existing community and increase the consideration of accessibility. In order to green the crowded sidewalk, it shall be widened appropriately to facilitate the use of wheelchairs. Second, carry out step-by-step field design. Ramps are added in the residential entrance, curb, central square and other activity spaces, railings are set on one side, and rest benches are set at many places along the way to facilitate the passage and rest of the elderly.

4.2 construction of public space

The outer space of the residential area provides conditions for the entertainment, communication and fitness of the elderly. We should pay attention to the characteristics of openness and sharing, respect the spontaneous space for the activities of the elderly, give priority to the use needs of the elderly, and take care of other groups at the same time.

4.2.1 enrich public space types

The public space of the existing community is often single, while the outdoor activity space of the elderly includes social space, fitness space, rest space and entertainment space. From the perspective of behavioral psychology, the elderly prefer to integrate these activities. Therefore, these spaces should not have obvious boundaries or too far apart, and the line of sight should be blocked. It shall be arranged adjacent and compatible with multiple functions, such as fitness, chat, chess and card activities, etc.

4.2.2 increase interaction in existing public spaces

Limited by the existing area, some communities cannot add other public spaces. Therefore, it is necessary to use the "gray space" of some communities for certain transformation to increase the communication and sharing of public spaces. For example, add a seat and landscape sketch under a pavilion or shade.

4.3 quiet and comfortable landscape environment

Landscape environment is an indispensable part of the external environment of residential area. Improving the landscape of the residential area can not only improve the microclimate of the residential area, but also provide comfortable rest and viewing conditions for the elderly, which is of great help to increase the possibility of the elderly going out.

4.3.1 increase the connection between the elderly and landscape greening

At present, although most residential areas have a lot of landscape greening, they are relatively closed and lack of hard paved roads. The central landscape is often blocked by a certain line of sight. All these hinder the contact between the elderly and the landscape. Whether it is green plant landscape or water landscape, these are the landscape environmental elements loved by the elderly. Therefore, it is necessary to carry out layered design for the landscape of the existing residential area to enrich the landscape elements and greening types.

4.3.2 pay attention to the enclosure of landscape layout

Closed landscape greening can not only produce more positive space, but also bring a sense of psychological security and sureness to the elderly. Therefore, the site design should form a closed layout as far as possible, and set green or landscape walls behind the seats or at the corner of the site, which can not only improve the privacy of the site, but also provide a hidden rest environment for the elderly.

5. CONCLUSION

Our society attaches importance to the care of the elderly, which is the embodiment of the people-oriented spirit. The aging transformation of the external space of the

community can improve the living environment of the elderly, improve the quality of life of the elderly and create a harmonious community atmosphere. This is of great significance to the elderly and the whole society.

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Discussion on Life Cycle Management System of Power Grid Equipment Based on Internet of Things

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Abstract: The life cycle management of power grid equipment must integrate cost management, efficiency management and safety management to manage the life of the equipment. Through the scientific and reasonable application of the Internet of Things technology, relying on various sensors to monitor the panoramic state information of the power equipment, and to realize the correlation with the equipment's own attributes (operation status, previous test data, maintenance status, etc.). While judging the equipment status, it also evaluates its service life, realizes functions such as auxiliary decision-making for cycle cost optimization, achieves the life cycle management of power assets, and improves the real-time and accuracy of equipment diagnosis and evaluation, which is useful for production, installation, logistics, and maintenance. Provide a strong basis for many different links.
Keywords: Lifetime Management; Power Equipment; Decision-Making For Cycle Cost Optimization.

0. INTRODUCTION

Science and technology is the primary productive force and one of the main ways to promote the all-round modernization of society. With the rapid development of science and technology and the emergence of Internet of things technology, the concept of life cycle management is also changing. Electric power enterprises are asset decentralized enterprises, with many asset use departments, a wide range of use locations, complex structure classification and large coverage. At this stage, the fixed assets management of power grid enterprises is still at a very backward level. There are often inconsistencies in accounts, cards and materials. There is a lack of effective control over various management links of assets, such as procurement, operation, capital transfer, maintenance, allocation and scrapping, which brings great difficulties to the management of fixed assets. Under the constraints of reliability and security, how to use high-tech means to build the core competitiveness of enterprises and improve the level of asset management has become an urgent task for power grid enterprises. The main purpose of this study is to solve these difficulties. In order to improve the management level of fixed assets of power grid enterprises, this study uses RFID technology in the Internet of things, combined with advanced technologies such as computer, wireless network communication, intelligent terminal and software system, adheres to the concept of asset life cycle management, and takes the watt hour meter in power assets as the research object to design a set of watt hour meter life cycle management system based on Internet of things technology, It can realize intelligent supervision in the stages of procurement, warehousing, inventory, operation, maintenance and scrapping, realize the unity of people, accounts, cards and materials, and help power grid enterprises realize the whole life cycle management of equipment from procurement to scrapping; Truly realize the paperless and addressless asset management; Improve work efficiency, reduce management costs, provide accurate reference data for enterprise investment decision-making and rational asset allocation, improve the information management level of power grid enterprises, and promote the construction and development of smart grid. Firstly, this paper analyzes the research status of Internet of things technology and traditional power asset management at home and abroad, points out the shortcomings of power meter asset management, leads to RFID technology, and expounds the research purpose, research methods and innovation of this paper. Secondly, it discusses and studies the current situation and existing problems of electric energy meter asset management system, and puts forward solutions and functional requirements. Thirdly, the key technologies of energy meter life cycle management system based on Internet of things are introduced and analyzed, and the difficulties and solutions of RFID middleware and database synchronization design are emphatically analyzed.

1. OVERALL FRAMEWORK DESIGN

(1)Users can use the interconnected information network platform to realize the support of internal and external business of the power grid company through the high integration of data related to various dimensions of power transmission and transformation equipment, and solve the problems of data storage, retrieval, use, mining and confidentiality. This is Implementation platform for power transmission and transformation equipment in the construction of power Internet of Things.

(2) Platform decision-making is to mine the value of data by integrating power production data, operation and maintenance data, and management data to form an application platform for the management of the Internet of Things for power transmission and transformation equipment. The construction of the ubiquitous power Internet of Things for electrical equipment provides a reliable and accurate algorithm model.

(3) Data transmission is through the Internet, communication network and other basic network facilities, used to realize the wide-area data access and transmission

between the perception layer and the platform layer, and provide a safe and fast network channel for the construction of the ubiquitous power Internet of things for power transmission and transformation equipment.

(4) Equipment monitoring is composed of different sensors, controllers, software applications and local communication networks, which connect tens of thousands of equipment and systems such as power production, transmission, and consumption to realize equipment status information and management processes The collection and aggregation of information such as power grid dispatching data and the local or remote processing of data are the information collection layer for the construction of the ubiquitous power Internet of Things for power transmission and transformation equipment, which can achieve accurate collection of grid data.

2. CONSTRUCTION PLAN

Equipment life includes physical life, technical life and economic life. The physical life is determined by the electrical and mechanical properties of the equipment itself; the technical life depends on the design and is determined by human experience; the economic life is based on the equipment's living conditions, input and output, and economic benefits to determine the equipment's retirement life, which is also a cost analysis The predicted best useful life.

The construction of the equipment's life cycle management system must comprehensively consider various related factors such as physics, technology, and economy.

(1)At the initial stage of equipment purchase, preliminary estimation of equipment parameters, operating environment, and economic benefit indicators should be carried out, and the requirements for equipment should be proposed based on the estimation results.

(2)When the purchased equipment is handed over, it is necessary to check and accept the basic equipment parameters, factory test, installation status, handover test, debugging data, etc., register the assets in the ERP system, and check the basic account, factory, and Data information such as installation and commissioning shall be filed.

(3)After it is put into operation, use the production management system to supervise, monitor, operate and maintain, and evaluate the operation of the equipment to ensure the normal operation of the equipment. At the same time, during the operation of the equipment, the defects, failures and other problems of the equipment are overhauled, modified, etc. Information carries out the construction of a multi-dimensional large database.

(4)Through the establishment of equipment status assessment model, the parameters that have an impact on the safe operation of equipment are extracted for predictive analysis of equipment status, the equipment operation status is evaluated, maintenance or overhaul of abnormal conditions is performed, and the investment funds are associated with the ERP system. By considering the early economic investment and the economic investment in the operation process, the consequences of equipment shutdown are evaluated and analyzed, the equipment maintenance and the equipment residual value are compared, and the maintenance of the equipment is evaluated and analyzed to determine whether the equipment is overhauled[1]. The reasonableness of the equipment maintenance cost. If the maintenance is carried out, the maintenance cost is included in the asset management system of the equipment's life cycle. Until the equipment exits the system and is scrapped, the equipment's life cycle operation and asset conditions are analyzed, and the equipment service age is obtained. The present value function, the change trend of the equivalent cost of the whole life year with the age of service, and finally the various calculation results are used to calculate the annual maintenance cost expectation and the interruption cost expectation, give the annual operating cost expectation, and combine the failure rate forecast to give the maintenance strategy, Repair project recommendations, estimated economic investment, to achieve the purpose of long equipment life and less maintenance, and also to achieve the purpose of selecting high-quality equipment from high-quality manufacturers, to achieve the optimal use of equipment in the system, and to achieve lean operation and maintenance of equipment in the long run. Intensive project control and asset life-span management are of great significance.

3. EXAMPLE DEDUCTION

Take transformer as an example: According to the research and analysis on the operation of the transformer, the life cycle of the transformer can be roughly divided into five stages [2]. The first stage is the manufacturing, transportation, and installation stages. Before the transformer is put into operation, it is a one-time investment with a large amount; the second stage is the first year of operation, mainly for first inspection and routine maintenance; the third stage is operation 2 to 10 years is a stable operation period, with low failure rate, high economy, fewer repairs, and low operation investment; the fourth stage is a period of operation for 10 to 20 years, when the failure rate is rising, and the economy at this stage decreases and investment increases; fifth The stage is after 20 years of operation, and the operation is approaching the economic life. At this time, it is not economical to continue to use, so the transformer is decommissioned and replaced.[3]

From the equipment purchase and delivery, the equipment model, manufacturer, equipment purchase cost, installation and transportation, handover and acceptance, etc. have all been recorded in the ERP system database. The equipment is put into operation. Test information (factory, handover, prevention, routine), etc. will be archived in the production operation management system. At the same time, various tests, maintenance, and repair costs during the operation will also be recorded in the ERP system. When the equipment has defects or failures again, it is evaluated based on the status of the equipment, and the maintenance strategy is determined according to the evaluation results. Generally, the maintenance cost of type A is about 250, 000 yuan, the cost of type B maintenance is 150, 000 yuan, and the cost of type C maintenance is 50, 000 yuan, combined with production Management safety

requirements, consider the impact on production, safety consequences, power outage consequences, maintenance costs, etc. Use the possibility of failure to analyze the safe operation of equipment, and comprehensively analyze whether the equipment is operating based on information such as the residual value of the equipment in the ERP system and the economic indicators of the operating life of the equipment. Repair, and determine the maintenance strategy. When the decision is not worth repairing, start the equipment scrapping process until the scrapping ends, the life cycle management of the transformer has also realized a closed loop, which can be established through the management of the equipment operating status and the life cycle Based on the economic life prediction analysis of equipment use, this also achieves the goal of grid security, the most economical cost, and the highest comprehensive energy efficiency of the equipment during the entire life cycle of the equipment. [4]

4. CONCLUSIONS

Through the construction of a life cycle management system for power grid equipment based on the Internet of Things, information interaction and application interconnection between various software of the production management system can be realized, which improves the data information interaction of equipment, and at the same time uses big data to determine the economic benefits of equipment and improve It improves the lean management level of equipment, promotes the value-added of power data assets, facilitates the application of digital informatization and the development of big data analysis, realizes the application of data collection, shortens the data interaction time, and reduces the life cycle cost of the equipment, and improves the equipment Comprehensive utilization level.

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A Method of Direct Control Design Based on The Least Squares Iterative Algorithm

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Abstract: This paper presents the least squares based iterative identification algorithms to deal with the output noise influence of the virtual reference feedback turning (VRFT) approach. VRFT approach is based on the measured data of the open-loop unknown plant, and designs the controller directly which makes the closed-loop characteristics fit the reference model objection demand. However, the output noise affects the designed objective and produces the basis to the controller parameters estimate. Though some effective methods have been developed to reduce the effect of the unmeasurable noise, the least squares based iterative identification method is featured by attractive characteristics such as direct using the one set of the measured date, no need to change the structure of the controller and no need to increase the complexity of the controller. The simulation results demonstrate the effectiveness of the proposed algorithm.
Keywords: Data-driven design; Virtual reference feedback turning; Lleast squares method; Model reference control

1.INTRODUCTION

In the past several decades, the controller design methods with the plant model techniques have received much research. However, due to the complexity of the industrial processes, the model of the processes is hard to be identifified with a reasonable modeling accuracy, not to mention, to use this model to depict the dynamic response of the process.However, if the distinction between the plant model and the process is not too large, it is also boring to design suitable controller which assures the best closed-loop control performance. For this reasons, direct data-driven control methods using merely input and output data of the open loop plant have been developed.

Virtual reference feedback turning (VRFT) approach is one of the typical data-driven approaches. This approach is based on the measured data of the open-loop unknown plant, and the controller is designed directly, which makes the closed-loop characteristics satisfy the **reference** model objection demand. VRFT method is originally proposed in[1]~[4], developed in [5], [6] [9]~[12], and applied in [7], [8]. Although VRFT approach also has obtained the promising results, the output noise plays the serious effects of the controller paraments identifification, and several papers have considered this problem. In [3], the two-degrees-freedom controller has been designed to take care of the noising affecting the plant, which the complexity of the controller is increased. [5], [10] considere the effect of the noise factor for the linear systems and the nonlinear systems respectively.

In this paper, due to the existing of the output noise, an improvement of VRFT strategy which can reduce the effect of noise and obtain more accurate controller paraments estimate is presented. This paper uses the least squares based iterative identifification method in [13] and [14] to solve the output noise estimate problem for VRFT method. [15] and [16] have used the least squares based iterative identifification method to the multi-rate systems for the two-input and multi-input systems with the colored noises respectively. The advantage of the proposed algorithm is that it can use only one set of data to estimate the controller paraments without changing the structure of the controller, and increasing the complexity of the controller. The results demonstrated by the simulation will be validated.

The structure of the paper is as follows. In section 2, the basic idea of the VRFT method is described. Section 3 introduces a least squares based iterative algorithm to estimate output noise parameter. It subtracts the effect of the noise estimate from the estimate of the controller parameters, and obtains the perfect controller parameters estimate. Conclusion and remarks are presented in section 4.

2.THE VIRTUAL REFERENCE FEEDBACK TURNING FRAMEWORK

The VRFT method approximately solves a model reference problem in discrete time, using the collected openloop I/O data. It designs a controller without resorting to identifification of a model of the progress, and for any given desires the response of the closed-loop consisted by $P(z^{-1})$ and $C(z^{-1})$ closely to the reference model as depicted in Fig 1.

$$\hat{\theta}(N) = \arg\min J^N(\theta) \quad (1)$$

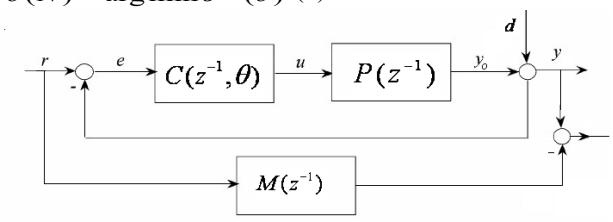

Fig 1. The model reference control system

As stated above, the progress is the unknown plant model, therefore the estimate of the controller parameters vextors is impossible to be obtained. In order to solve this diffifficulty a virtual reference variable is considered.

$$\bar{r}(k) = M^{-1}y(k) \quad (2)$$

where y(k) is the measured open-loop output data collected form the plant. A virtual is only a virtual variable, using to design the controller, and not using to the actual progress. Then the corresponding tracking error signal can

be obtained. The controller virtual output can be generated by the controller.

It is noted that if given a set of actual measured input signal, a set of output signal also can been collected, even though the actual progress model P is unknown. A controller can generate $\{u(k)\}_{k=1, ..., N}$, when fed by the error signal.Hence, the idea comes to being. The control objective is changed that searching such a controller $C(z^{-1}, \theta)$ which fed by the virtual error signal can generate the virtual controller output signal, as closely as the measured actual input signal depicted in Fig 2.

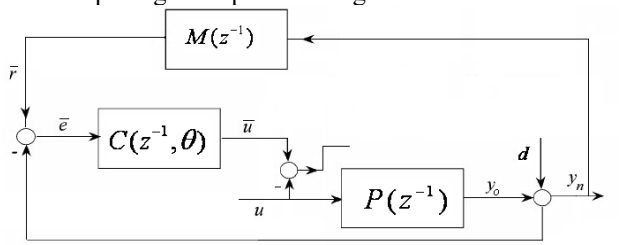

Fig 2. The principle of the VRFT approach

The new control objective is expressed as:

$$\hat{\theta}(N) = \arg\min_{\theta} J_{VRFT}^{N}(\theta) \quad (3)$$

If the proposed controller is linear in θ, then $J_{VRFT}^{N}(\theta)$ is quadratic in θ. The implementing above idea to identify the controller parameter θ is expressed the classical least squares identifification. The bulk of the VRFT method is refereed to [5].

In the next section, it shows the effect of the output noise d(k) to the least square estimate, and removes the noise contribution parts from the controller parament estimate by using an iterative approach.

3.THE LEAST SQUARES BASED ITERATIVE ALGORITHMS OF EMBEDDED SYSTEMS

The fifiltered input signal uL(k) can be obtained.

$$u_L(k) = L(z^{-1})u(k) \quad (4)$$

Because of exciting of the output noise, the generated virtual reference signal, the fifiltered virtual tracking error and the information vector φ(k) conclude the noise item. The idea is that the noise contribution parts is removed from the control paraments estimate, and more accurate controller paraments estimation is gotten. Hence, the output data y(k) concluded the noise d(k) is replayed with the estimate of the noise-free output yo(k).

The following summarizes the steps of the least squares based iterative VRFT design of controller:

1)Collect the I/O data and give the reference model $M(z^{-1})$

2) Generate $u_L(k)$

3) Let q = 1, initialize the noise and obtain the initialized the noise –free outut

4) Form the iteration estimate variable

5) Update the iteration

6) Compute the iteration estimate variable

7) Compare q with Q. If it is equal, then terminate the procedure and obtain the qth iteration estimate, otherwise set k = k +1, and go to step 4.

The flowchart of computing the controller parameter estimate in the least squares based iterative algorithm is shown in Fig. 3 with the increasing of the tag k.

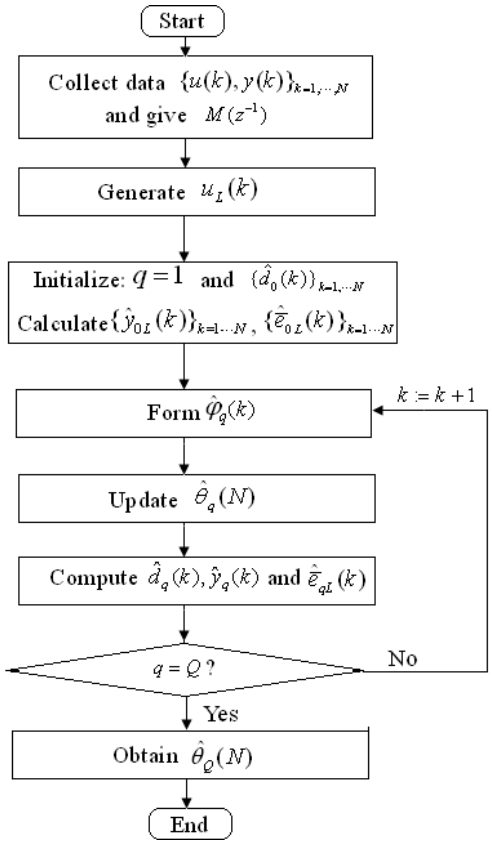

Fig 3. The model reference control system

4.CONCLUSIONS

In this paper, we have proposed least squares based iterative identifification algorithms to deal with the output noise inflfluence of the virtual reference feedback turning approach. The basic idea is that the noise-contribution parts is removed from the controller parament estimate, and the quite good estimation accuracy is obtained. The advantages of the least squares based iterative identifification is that it uses the only one set of the measured date, does not need to change the structure of the controller, and not need to increase the complexity of the controller. The simulation results demonstrate the effectiveness of the proposed algorithm. The results show that an more accurate estimate can be achieved by this approach.

ACKNOWLEDGMENT

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Prediction of Fungi's Decomposition Rate Based on Markov Chain and Gaussian Distribution

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Abstract: The decomposition of organic material is a critical component of the carbon cycle, and fungi are main contributors in decomposition. Therefore, study the decomposition rate of fungi is important to help accelerate carbon cycle and help protect environment. In this article, we propose a model to predict the decomposition rate of different combinations of fungi in various environments. Firstly, we use k-means method to classify fungi, and build a Markov Chain based model to describe the interspecies interaction; Secondly, we use multiple gaussian distribution to analyze the impact of environment on fungi's decomposition rate. Finally, we combined above two models to evaluate the decomposition rate of different combinations of fungi in various environment. Through Matlab simulations, the model can be applied to predict fungi's decomposition rate and find the most suitable combination of fungi for environmental protection. Additionally, it can verify the importance of biodiversity.

Keywords: Decomposition rate of fungi; Markov chain; K-Means; Multiple Gaussian Distribution; MATLAB

1. INTRODUCTION

1.1 DECOMPOSITION OF FUNGI AND ITS INFLUENCING FACTORS

Fungi are decomposers in nature. They contribute to accelerating the earth's carbon cycle by decomposing woody fibers and ground litter. Therefore, increasing their decomposition rate is of positive significance to the earth's carbon cycle.[1] As the carbon cycle is getting more and more attention, studying the decomposition rate of fungi has become increasingly important. Recently, scholars have studied the main factors affecting the decomposition rate of fungi. There are two factors that affects fungi's decomposition rate according to Nicky Lustenhouwer recent research.[2]

①Internal Factors--Competitive Ranking: There are mainly four types of interspecies relationship between fungi, predation, competition, parasitism and mutualism. If fungi's living conditions are highly overlapped, there will be competition between fungi.[3] Competitive Ranking reflects the degree of competition between fungi's populations. In the case of limited resources, fungi with strong competitiveness can occupy the niche of fungi with weak competitiveness and obtain more resources, while fungi with weak competitiveness is in a suppressed state, which is manifested as a decrease in the decomposition rate.

②External Factors--Environmental Factor: Fungi's decomposition rate is affected by temperature and moisture.[4, 5] Each fungus has its suitable temperature and moisture zones. Under suitable temperature and moisture, the decomposition rate reaches the maximum. The moisture niche width reflects the degree of fungi' dependence on water, which is reflected in the adapt ability of fungi to the environment.

1.2 MODEL ASSUMPTIONS

In order to facilitate the solution of the problem, the following conditional assumptions are proposed: ① Competition is the only interspecies relationship between fungi; ②Competition does not lead to the extinction of fungi, but only leads to inhibition of fungal life activities; ③The decomposition rate of fungi is only affected by competition, temperature and moisture.

2. INTERSPECIES INTERACTION IMPACT ON FUNGI'S DECOMPOSITION RATE BASED ON MARKOV CHAIN

2.1 FUNGI INITIALIZATION

In order to simplify the model, we selected the most representative four types of fungi for simulation through k-means clustering, and gave the possible distribution densities of various groups. Then our model describes the interaction between fungi based on the Markov chain model.

Table 1. Fungi Type

Type	Growth Rate/Decomposition Rate	Competitive Ranking	Moisture Niche Width
a	High	High	Low
b	High	Low	Low
c	Low	High	High
d	Low	Low	High

Our model uses decomposition rate and moisture tolerance to describe the inherent properties of fungi. Moisture tolerance is the difference between a fungus' competitive ranking and its moisture niche width. According to the research of Nicky Lustenhouwer, fungi with slow growth rate are often more adaptable to changing environment than fungi with fast growth rate. Meanwhile, the growth rate and decomposition rate are positively related and one-to-one correspondence. Therefore, we divided all fungi into four categories according to their decomposition rate, competitive ranking and moisture niche width. Table 1 shows our

classification.

In order to determine the specific scope of each index, we analyzed Nicky Lustenhouwer's research. We found that moisture tolerance ranges from -0.7800 to 0.9900. Define $W_H\ W_L\ W_M$ as lower, middle and upper bound of moisture niche width, then low width $\in (W_L, W_M)$, high width $\in (W_M, W_H)$; Similarly, low ranking $\in (R_L, R_M)$, and high ranking $\in (R_M, R_H)$. In accordance with our classification rules, we equally divide the moisture tolerance into four parts -0.7800~-0.3375, -0.3375~0.1050, 0.1050~0.5475, 0.5475~0.9900 and get the following equation set.

$$\begin{cases} R_L - W_H = -0.7800, \\ R_H - W_L = 0.9900, \\ R_L - W_M = -0.3375, \\ R_M - W_L = 0.5475, \\ R_M - W_H = -0.3375, \\ R_H - W_M = 0.5475. \end{cases} \quad (1)$$

Both moisture niche width and competitive ranking belong to (0, 1).

Multiple and low order equation group do not necessarily have solutions Solving with Matlab, we found that to enable the equation has a solution, W_H is required to belong to (0.885000, 0.895000). Without loss of generality, we set $W_H = 0.890000$, then we can get the range of competitive ranking and moisture niche width. To get the exact range of decomposition rate, we need to use clustering which we'll go into details in the next section. The results are shown in Table 2.

Table 2. Scopes of Each Index

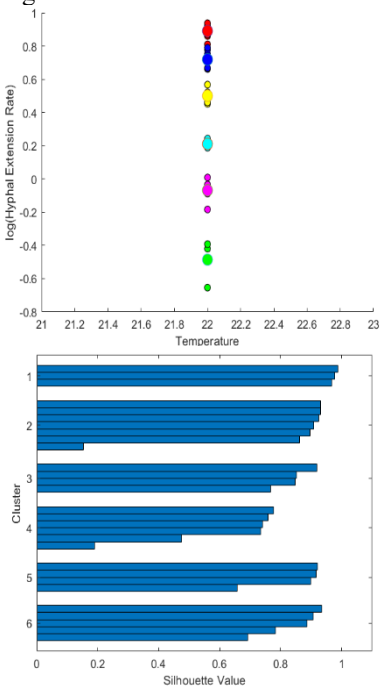
Index	Decomposition Rate		Competitive Ranking		Moisture Niche Width	
high	0.067340 0.436984	~	0.552500 0.995000	~	0.447500 0.890000	~
low	0.065783 0.386865	~	0.110000 0.552500	~	0.050000 0.447500	~

2.2 THE K-MEANS METHOD

The k-means algorithm is a method of constructing k divided clusters according to a given data set of n data objects, and each divided cluster is a cluster. This method divides the data into n clusters, each cluster has at least one data object, and each data object must belong to and can only belong to one cluster. At the same time, the similarity of data objects in the same cluster is high, and the similarity of data objects in different clusters is small. Cluster similarity is calculated using the mean value of objects in each cluster.[6]

Besides, k-means seeks to minimize the average squared distance between points in the same cluster, so we can get the centroid of a cluster.[7]

Since the moisture niche of different types of fungi are highly overlapped, which all live by decomposing woody fibers and ground litter, so we only consider the competition between fungi. Competition among populations often has three results: dominant, disadvantaged, and inhibited, so there are two fungi types and three states. In order to get the decomposition rate of fungi, we need to quantify the growth rate range of both fungi first. We analyze the growth rate data at 22°C (suitable environment), because the data distribution is asymmetric, in order to make the data evenly distributed to improve the accuracy, we take the logarithm of the growth rate, and then use the k-means method to divide it into 6 categories. The clustering results are shown in Figure 1.



(a) Fungi are Classified into Six Groups (b) Clustering Evaluation

Figure 1. Clustering Results

Through clustering, we can divide fungi into six categories according to their growth rate, and we can get the decomposition rate of fungi based on their growth rate. We sort the fungi by decomposition rate from high to low, and the first, third, and fifth groups are used as the three states of the high decomposition rate fungi. Similarly, the second, fourth, and sixth groups are used for the low type. Thus, the decomposition rate range of two types of fungi can be obtained. For each status of both fungi, k-means clustering is used again to obtain the center point of the decomposition rate of the type of fungi, that is, the most likely decomposition rate of the type of fungi. The clustering results are organized in Table 3.

Table 3. Status and Decomposition Rate

Status	High Decomposition Rate	Low Decomposition Rate
Dominant	0.23900	0.17150
Disadvantaged	0.16600	0.11000
Inhibited	0.09954	0.09398

Considering that the decomposition rate of fungi in a certain state is not invariable, we add a random number to the decomposition rate of each type of fungi. Random numbers obey normal distribution $N(0, 0.01)$.

2.3 THE MARKOV CHAIN MODEL

A Markov chain is a stochastic model describing a sequence of possible events in which the probability of each event depends only on the state attained in the previous event.[8] Proportion of three fungal states in population is also only related to the current state. The most important components of Markov chain prediction are the initial state matrix and the transition matrix. The next step state matrix is multiplied by the state matrix and

the transition matrix, and repeats until the state matrix becomes stable.

The Markov absorption chain refers to a factor that can only remain unchanged once generated in the state space, and this Markov chain will converge to the invariant factor.[9] Interspecies competition also exists the condition that a species is inhibited by other species, and the population cannot be restored. Therefore, we can use Markov chain to predict interspecies competition.

Step1: Get the Initial State Matrix of the Markov chain.

In the initial state, the proportion and distribution of the four fungi are random. The proportion of the initial population density will significantly affect the distribution of the initial competitive state.[10] To describe this relationship, let the proportion of the initial population of the four fungi be a: b: c: d (a, b, c, d here means population density of a, b, c, d).

Inspired by cellular automata, [11] we construct a rectangle with three rows and three columns. Focus on the fungi in the center, its initial state is affected by the surrounding eight fungi. As direct competition and indirect competition has different impact on the fungus' state, so we set that the influence of direct contact with fungi is twice that of indirect contact. After normalization, the scores are 1/6 and 1/12 respectively. Surrounding fungi may be more competitive, less competitive or as competitive as the same. We rule that for two fungi with the same competitive ability, the scores are equally divided; for two fungi with different competitive ability, because the average ranking values of strong and weak competitive ability are 0.75 and 0.25, respectively, the scores are assigned at 3:1; for the same kind of fungi, it gets all scores, because we do not consider intraspecies competition.

$$\begin{cases} Scores_a = a + \frac{1}{2}b + \frac{3}{4}c + \frac{3}{4}d, \\ Scores_b = \frac{1}{2}a + b + \frac{3}{4}c + \frac{3}{4}d, \\ Scores_c = \frac{1}{4}a + \frac{1}{4}b + c + \frac{1}{2}d, \\ Scores_d = \frac{1}{4}a + \frac{1}{4}b + \frac{1}{2}c + d. \end{cases} \quad (2)$$

Step2: Get the Transition Matrix of the Markov chain.

We calculate fungi's decomposition rate at 22 degrees Celsius, and calculate the number of each fungi in the three status to obtain the ratio of the absorption probability of each fungus at 122 days. Based on the default conditions(Four kinds of fungi exist, and the ratio is 1:1:1:1), without loss of generality, we set the probability ratio of the dominant and disadvantaged to inhibited as 2:1. Then we can calculate absorption probabilities and transition matrix of each fungi when the initial proportions of the four fungi are different.

Nicky Lustenhouwer's research shows that high competitive ranking fungi will not be inhibited, while low competitive ranking fungi may be inhibited. Fungus with low competitive ranking and low moisture niche width have a higher probability of absorption, and our model reflects this feature. Probability of absorption can be calculated by equation(3).

$$\begin{cases} P_a = 0, \\ P_b = \frac{1}{2}Scores_b + \frac{3}{4}(1 - Scores_b), \\ P_c = 0, \\ P_d = \frac{2}{9}Scores_d + \frac{4}{9}(1 - Scores_d). \end{cases} \quad (3)$$

When we mention interspecies competition, Lokta-Volterra model is widely used to solve such problems, [12] we refer to its two common competition results. For the competition between biological species, the ratio of the dominant and disadvantaged tends to be exchanged every time they go through a cycle of competition. At the same time, species with low competitive ranking may enter a state of inhibition and cannot recover. In the Markov chain, they enter the state of absorption. If the competition cycle changes, the state transition matrix will change. We consider that the competition cycle of fungi is one day. Therefore, the state transition matrix for fungi with high competitive ranking and fungi with low competitive ranking are:

$$M_h = \begin{pmatrix} 0 & 1 & 0 \\ 1 & 0 & 0 \\ 0 & 0 & 1 \end{pmatrix}, M_l = \begin{pmatrix} 0 & 1-x & 0 \\ 1-2x & 0 & 2x \\ 0 & 0 & 1 \end{pmatrix} \quad (4)$$

For the Markov absorption chain, after multi-step conversion, the absorption probability is not sensitive to the initial state matrix, and can be considered only related to the transition matrix, the formula is as follows:

$$p = \begin{pmatrix} p_1 \\ p_2 \\ p_3 \end{pmatrix} = \begin{pmatrix} 0 & 1-x & x \\ 1-2x & 0 & 2x \\ 0 & 0 & 1 \end{pmatrix}^{122} \quad (5)$$

Using the classification method based on Table 3, it can be seen that the inhibited probabilities after 122 days are 5/11, 1/3 for two types of fungus (b and d, respectively). Now we know the initial state matrix and absorption state probability of the Markov, so we can calculate the transition matrix. But matrix inversion is cumbersome, so we each time let the denominator of transition matrix plus one, and calculate the corresponding the absorption state probability. At last, we record all the data and make a data table. We only use data with absorption probability in the range of (0.25 ~ 0.85), and use function to fit them. The fitting results are as Figure 2.

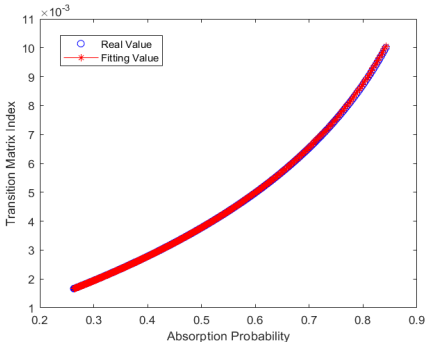


Figure 2. The Relationship Between Absorption Probability and Transition Matrix.

Matrix Index is as follows:

$$x = -\frac{1}{183.6}ln(1-p) \quad (6)$$

To sum up, we have established the following model: Get the Markov initial state matrix from the Markov initial population distribution, and then get the transition matrix.

2.4 PREDICT FUNGI'S POPULATION DENSITY

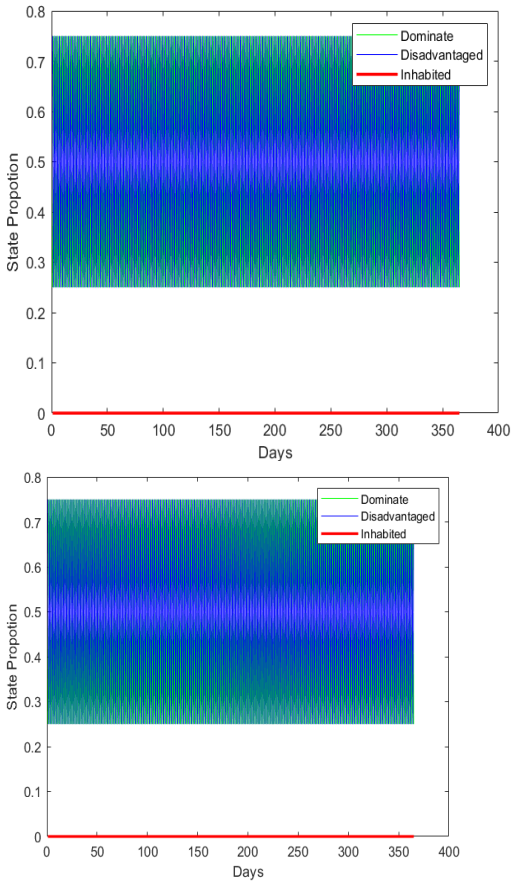
Take the default state as an example, the initial state matrix(show the dominant proportion only) and one-step transition matrix(show the absorption probability only) can be known using equation(6), so we get the Table 4.

Table 4. Initial State Matrix and One-Step Transition Matrix

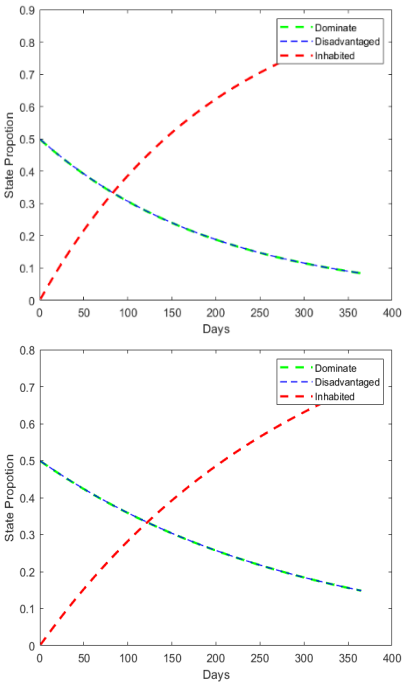
Fungi Type	a	b	c	d
Initial State Matrix	0.7500	0.5000	0.7500	0.5000
Transition Matrix	0.0000	0.0033	0.0000	0.0022

We take 365 competition cycles as an example, that is, to predict the interaction of fungi in a year, the proportion curves of each of the four fungi are shown in Figure 3. Note that the curves in Figure3(a) and (b) are the same, because the fungi will not be inhibited. In Figure 3(c) and (d), the blue curve and the green curve show a trade-off relationship, which means the fungi are competing fiercely and their competitive ranking are similar.

Due to the mathematical properties of the Markov absorption chain, the fungi are considered unable to recover after entering the inhibited status. In this status, the fungi will lose part of the environmental resources. Considering the different adaptability of the four fungi to the environment, adaptable fungi will expand their ecological width and maintain more resources, so we simply rule that the allocation ratio is 0.60 and 0.40, respectively. As the same, unadaptable fungi will lose part of their resources to adaptable fungi, so we set ratio of lose to be 0.75 and 0.80.



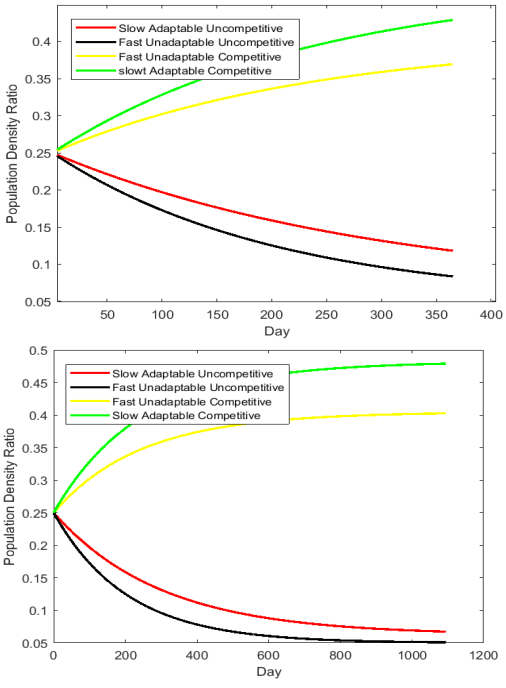
(a) Fast Adaptable Competitive Fungi (b) Slow Unadaptable Competitive Fungi



(c) Fast Adaptable Uncompetitive Fungi (d) Slow Unadaptable Uncompetitive Fungi

Figure 3. Proportion Curves

According to the above regulations, we can predict the population density of the four fungi after one year and three years respectively, as shown in the Figure 4(a) and (b).



(a) Prediction of One Year (b) Prediction of Three Years

Figure 4. Population Density Ratio Changes Over Days

From the above prediction, it is not difficult to see that the short-term trend of the interaction between fungi is that the proportion of low competitive fungi in the inhibited status is increasing, and the population density is gradually decreasing; the status of competitive fungi is changing between dominant and disadvantaged.

Relatively stable, and the population density is gradually increasing. In the long term, if the environment does not change, fungi with high competitive ranking will occupy most of the ecological niche, and fungi with low competitive ranking will be strongly inhibited, and the population density ratio will be stable.

3. ENVIRONMENT IMPACT ON FUNGI'S DECOMPOSITION RATE BASED ON GAUSSIAN DISTRIBUTION

3.1 ENVIRONMENT INITIALIZATION

Moisture and temperature are the most important indices in abiotic environment that affect the decomposition of fungi, so we only take temperature and moisture as the characteristics of the environment and then initialize them.

◆Moisture Index

Our model uses precipitation to describe moisture. In Table 5, we list five kinds of area type and their corresponding precipitation. (SI: mm/year)

Table 5. Precipitation and Area Type

Type	Arid	Semi-arid	Semi-humid	Humid
Precipitation	≤200	200~500	500~800	≥800

The optimal precipitation for fungi is set to 1000mm, [13] as humidity is the most suitable condition for fungi's decomposition. Moisture Index and precipitation are linear correspond. For example, precipitation 1000mm corresponds to 0.5, precipitation 250mm corresponds to 0, precipitation 1750mm corresponds to 1.

◆Temperature Index

The fungus has an optimal temperature range for decomposition, beyond this range, the fungus will stop decomposing, because they cannot grow in that temperature.[14] Rule that the upper temperature T_h, lower temperature T_l, given temperature is T, [15] then temperature index X is known by equation(7).

$$X = \frac{T - T_l}{T_h - T_l} \tag{7}$$

3.2 GAUSSIAN DISTRIBUTION

According to Shelford's law of tolerance and Liebig's law of the minimum, [16] influence of environment on the decomposition rate of organisms is generally distributed normally or can be approximated by Gaussian Distribution(normal distribution).[17] Based on this idea, we proposed a multiple Gaussian distribution model. The expression for the normal distribution is

$$f(x) = \frac{1}{\sigma\sqrt{2\pi}} e^{\frac{-(x-\mu)^2}{2\sigma^2}} \tag{8}$$

where σ and μ is the is the variance and mathematical expectation of the normal distribution.

Once σ and μ is obtained, the Gaussian curve can be determined, then the decomposition rate is known.

Step1: Get Gaussian Distribution of a Certain Type of Fungus.

To simulate a certain kind of fungi, we only need to know its suitable decompose temperature and moisture niche width. μ corresponds to the optimum moisture for fungi's decompose.

since we scaled moisture index to [0, 1], μ is most likely around 0.5, because fungi can maintain as good decomposition rate in both arid and humid area. [18] σ can be derived from the moisture niche width w.

$$\sigma = w * 2^{\frac{1}{2}} log(2)^{\frac{1}{2}} \tag{9}$$

The specific data are determined by fungi kind.

Step2: Get Gaussian Distribution of Various Type of Fungi.

As our model simulate a type of population rather than a specific population, the optimum moisture index and accurate water niche width is unknown to us. We assume that the uncertainty of the width of the moisture niche also obeys the Gaussian distribution. Due to interspecies differences, the most suitable moisture condition for fungi cover all moisture index, so we assume that in μ obeys Gaussian distribution of $N(0.5, 0.5/3)$, which means that the most suitable fungus' decompose moisture index varies from 0~1 in 99.73% cases.

From Table 3, we can get the range of water niche width. When the population is large enough, the moisture index of fungi obeys the normal distribution. Take unadaptable fungi for example, its decomposition rate ranges from 0.067340 to 0.4369840, so its mathematical expectation is (0.436984 + 0.067340)/2, and the variance is (0.436984 - 0.067340)/3. Thereafter, the niche width of unadaptable fungi can be obtained from equation (10).

$$w_{unadaptable} \sim N\,(0.024875, 0.08290) \tag{10}$$

In order to simulate huge populations, we generate about 10000 curves, and calculate their average values under the certain moisture. By changing the value of moisture index, we can get the corresponding decomposition coefficient under different moisture. In Figure 5(a) we show the relationship between precipitation and decomposition coefficient.

3.3 EXPERIENCE-BASED EQUATION

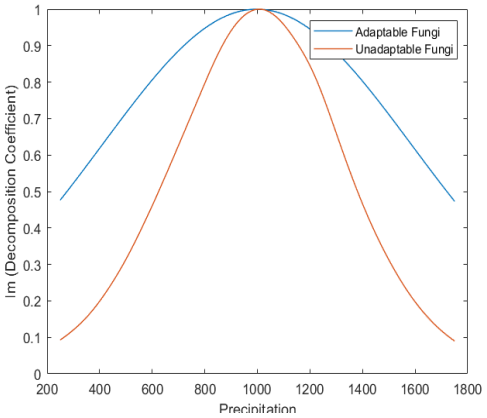
Temperature's impact on fungi's decomposition rate is dissymmetric.[19] From K Chen's research, we know that temperature impact fungus decomposition rate by the following formula:

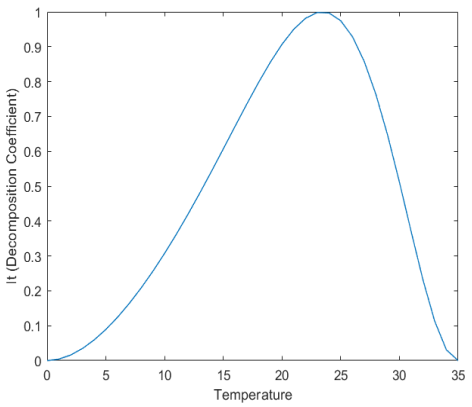
$$I_t = sin^2(1.31X - 0.0084X^2 + 0.000133X^3) \tag{11}$$

It here stands for decomposition coefficient by Temperature.

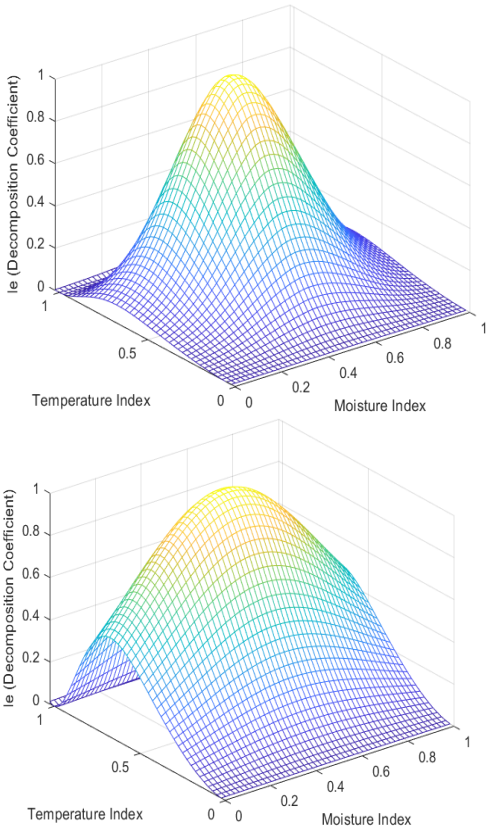
The temperature range for fungi's decomposition is set to be 0~35 so that they can grow. In Figure 5(b) we show the relationship between temperature and decomposition coefficient. We can see that, the suitable temperature for fungi's decomposition is around 23℃.

3.4 ANALYZE ENVIRONMENT IMPACT ON FUNGI'S DECOMPOSITION





(a) Precipitation and Decomposition Coefficient (b) Temperature and Decomposition Coefficient



(c) I_e of Unadaptable Fungi (d) I_e of Adaptable Fungi

Figure 5. Environmental Index Changes Due to Moisture and Temperature

In order to quantify the impact of environment on the decomposition of fungi, we simplify the combined effects of moisture and temperature, and multiply their effects as environmental decomposition coefficient. The formula is as follows.

$$I_e = I_t I_m, I_e \in (0, 1) \quad (12)$$

We can get Figure 5(a, b, c, d).

Figure 5(c) and (d) presents the environment impact on unadaptable fungi and adaptable fungi separately. Compare to Figure 5(d), the curve in Figure5(c) is slim and narrow, which means that a slight environment change will greatly affect fungi's decomposition rate.

4. RESULTS AND DISCUSSION

4.1 ANALYZE FUNGI'S DECOMPOSITION COMPREHENSIVELY

In the previous section, we calculate the decomposition rate of the fungus affected by competition. In the competition model, we divide fungi into four types, each of which has three states. So, the decomposition rate of a certain kind of fungus can be described below. Let I_c stands for the decomposition rate of a group of fungi, and the three values of i correspond to the three states of dominate, disadvantage and inhabitant respectively. We use Ratio to present proportion of fungi in a certain state in the population, then we can get I_c through the following equation:

$$I_c = \sum_{i=1}^{3} Ratio(i) \times Status(i) \quad (13)$$

Considering that the environment also has impact on fungi's decomposition rate, we need multiple I_c and decomposition coefficient to get the final decomposition rate expression of a certain type of fungus. Environmental factor is defined in equation (12).

Accumulate the all fungus's decomposition rate, we can get the total decomposition rate of the fungus combination.

$$N = \sum_{j=1}^{4} I_c(j) I_e(j) \quad (14)$$

The four values of j correspond to the four types of fungi. In order to reflect the accuracy of the model, we simulate the decomposition of fungi according to the experimental conditions in Nicky Lustenhouwer's research. Under different experimental conditions, final result is similar to the real data, which proves that our model has good performance and robustness. With this foundation, we can then verify the decomposition trend of fungi in various environments and the pros and cons of various species combinations.

4.2 THE DECOMPOSITION RATE OF DIFFERENT COMBINATIONS OF FUNGI IN VARIOUS ENVIRONMENT

Using our model, we can predict the decomposition rate of different combinations of fungi in various environments. We do not simulate all kinds of environment, to simplify the process and make our results more representative, we simulate two kinds of environment. One is suitable for fungi's decomposition, while the other is unsuitable.

◆Unsuitable Environment(Arid):[20] The temperature is basically maintained at 25 to 28 degrees Celsius, annual precipitation is generally less than 200mm.

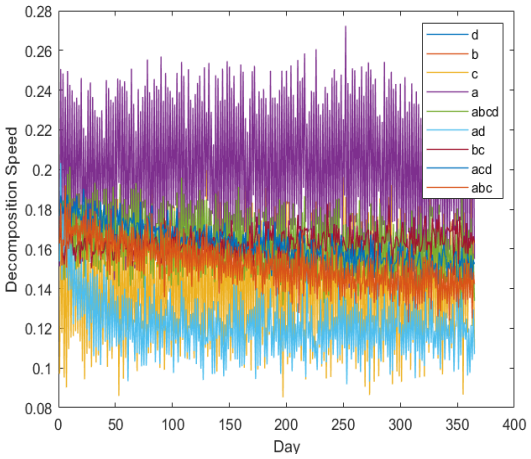
◆Suitable Environment(Arboreal):[21] Temperate is around 23 degrees Celsius and precipitation is 1000mm.

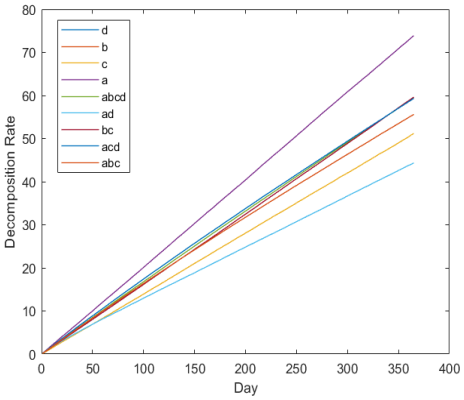
There are four situations when the four fungi are cultivated separately, there are 6 situations in two combinations, 4 situations in groups of three, and one situation in four kinds of fungi, so we have 15 combinations in total. We will exclude six combinations which will not be considered for their characteristic can be predicted. For example, a and b's decomposition and stability are basically the same as a or b. The detailed analysis of 9 combination are listed in Table 6.

Accordingly, we consider 9 combinations of fungi and 2 environments.

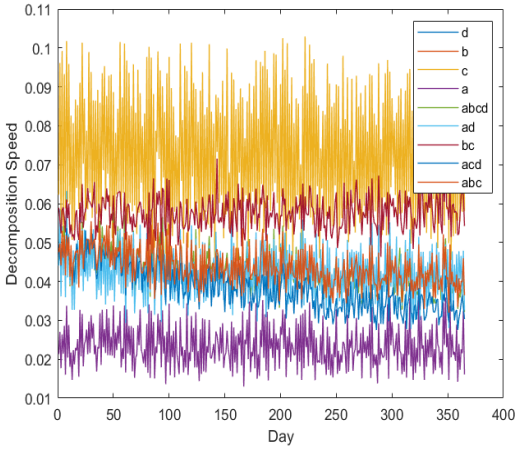
Table 6. Combinations / Advantages and Disadvantages

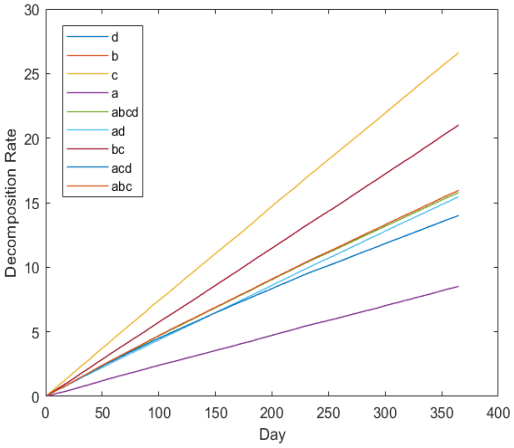
Combinations	Advantages and Disadvantages
a or b c or d	Fast decomposition rate, weak adaptability Slow decomposition rate, strong adaptability
b and c	The initial decomposition rate and adaptability are good, and eventually tend to c
a and d	The initial decomposition rate and adaptability are good, and eventually tend to a
a, b and c	Always maintain a good decomposition rate and stability, final decomposition rate is slightly better than the stability
a, c and d	Always maintain a good decomposition rate and stability, the final stability is slightly better than the decomposition rate
a, b, c and d	decomposition rate and stability have always been kept in good balance





(a) Decomposition Speed in Arboreal (b) Decomposition Rate in Arboreal





(c) Decomposition Speed in Arid (d) Decomposition Rate in Arid

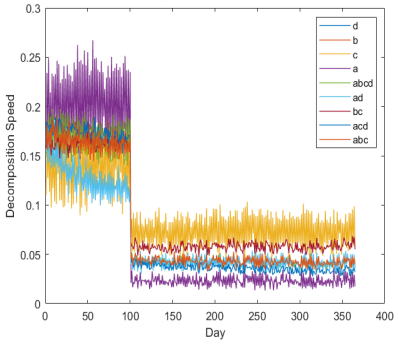
Figure 6. Decomposition Speed and Decomposition Rate

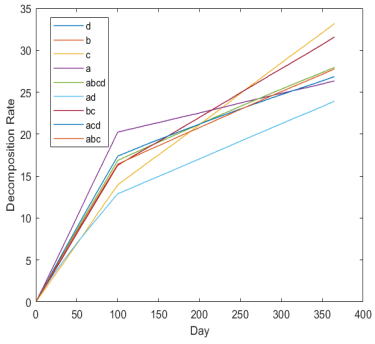
Figure 6 shows our simulation results. We can see that in Arboreal and Arid, the decomposition rate of fungi is quite different. In Arboreal area, due to suitable environment, competition become the only impact factor of decompose, so the decomposition rate can reach 70. While in Arid area, the precipitation is too low, so the decomposition rate only reaches 30.

4.3 THE IMPORTANCE OF BIODIVERSITY

At the beginning of the experiment, the fungi was allowed to grow under suitable conditions, and the environment became very unsuitable for fungi growth on the one hundredth day(from arboreal to arid environment).

As shown in Figure 7(a), after 100 days, when environment changed dramatically, all fungus's decomposition speed drops, but the decline is different. In Figure 7(b) we can see that the decomposition rate(sum of decomposition speed) of nine fungi combinations. Note that when cultivated separately, a and b's decomposition rate is the same, so are c and d.





(a) Decomposition Speed Changes Over Days (b)

Decomposition Rate Changes Over Days

Figure 7. Results of Experiment

Analyze the decomposition rate of abcd, it can be seen that during 365 days, its decomposition rate is in middle of all nine groups, which indicated the pros and cons of biodiversity. Group a and b decompose very fast in the first 100 days, but their decomposition rate drops a lot when environment changes. We can predict that if the environment does not recover, they will have the lowest decompose rate.

5. CONCLUSION

In this article, we propose a model that can predict the decomposition rate of different combinations of fungi in different environments. We first use certain rules to classify fungi, and use k-means method to verify the correctness of our classification. Classification provides the basis for us to use the Markov chain model. Then we use the Markov absorption chain model to simulate the decomposition of fungi based on the relevant knowledge of the ecological niche, and predict the population density of fungi in the long and short term.

When describing the influence of fungi on the environment, we put forward the concept of decomposition coefficient. We take temperature and moisture as the main evaluation indicators, and normalize the temperature and humidity according to the decomposition of the fungus, and then use a normal distribution model and an experience-based equation to describe the effect of changing environment on the decomposition rate of fungi.

In short, this model is suitable for large-scale prediction of fungal decomposition rate, and can help select a combination of fungi with advantages in a certain environment, or select an environment suitable for fungal growth, and provide suggestions for improving fungal decomposition rate. At the same time, this model can verify the importance of biodiversity and can be used for environment recovery.

ACKNOWLEDGMENT

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A Study on the Feasibility of English Education for Preschool Children in the Context of Non-native Language

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ABSTRACT: the Promotion of our country's international status has brought us many opportunities for development, but at the same time it is also facing some challenges. Every country hopes to train more and earlier young talents, therefore, paying attention to the education of preschool children is in line with the needs of the country in cultivating talents, the feasibility study of English Language Education for Preschool Children in non native language settings reflects both the importance the state attaches to preschool and the growing internationalization of our country, even in the situation of non-native English, preschool children can receive good English education, so this paper studies the feasibility of non-native English learning for preschool children.
Keywords: non-native language situation; Preschool Children; English education; Feasibility

Preschool children refer to "children who have not yet reached school age" . From a worldwide perspective, the Regulations on children's school age vary from country to country, at present, the school age for children in China is six and a half years old, so preschool children include both newborn babies and children who are already in kindergarten. Many people may think that it is absurd to require preschoolers to learn English, because preschoolers themselves do not have the knowledge reserves, and therefore do not have the ability to learn English, moreover, it is even more difficult for preschool children to learn English in non-native language situations. But after this topic research and the discussion discovered that the actual situation and people's imagination are completely different. This paper discusses the feasibility of English teaching for Preschool Children in non-native language context.

1.A COMPARATIVE STUDY OF ENGLISH LEARNING IN NON-NATIVE LANGUAGE CONTEXT AND NATIVE LANGUAGE CONTEXT

As we all know, it is necessary for the study of any language subject in daily life, so many people are not optimistic about the English teaching of Preschool Children in non-native language situations. For Preschool children whose English is their mother tongue, the language they hear in their daily lives and the language their parents will teach them in the future will be English, so they will naturally be more flexible and proficient in mastering and applying it in the future, this is the same reason why Chinese preschoolers learn Chinese, and why many foreign friends find it difficult to learn Chinese, especially since English and Chinese are formed in different ways, english uses the basic 26 English letters in different combinations to form a variety of words, but Chinese is characterized by Pictographs, and the meaning can be expressed through the typesetting of words, therefore, in the face of the differences in learning languages between China and the West, teachers and parents need to explore and find a suitable way of learning English for Chinese preschool children.

2.THE FEASIBILITY OF ENGLISH EDUCATION FOR PRESCHOOL CHILDREN

In order to further improve the comprehensive quality of new horizon talents to meet the needs of the country's expanding reform, the English teaching for children and even the English teaching for Preschool Children by social forces has also shown a trend of rapid development, in the face of the voices from all walks of life questioning preschool children's English learning, teachers'groups have demonstrated that preschool children can learn English well even in non-mother-tongue situations through various studies, even his command of English is better than at any other time.

2.1Using Nursery Rhymes to Teach

Studies show that preschoolers are more sensitive to music than to pictures and words at the same time, and children who learn musical instruments as children may tend to have sharper minds than children who do not learn musical instruments at the same time, the development of auditory sense is earlier than that of visual sense and tactile sense, which shows that English teaching of Preschool Children in non-native language situations can take the form of teaching related to sound, so the use of nursery rhymes in preschool children's English teaching is a good way.

For example, for preschoolers, learning English starts with 26 letters, and the well known word for learning 26 letters and sounds is the alphabet song, when teachers or parents teach preschool children English in a non-native language setting, they should first

lead the students to recognize the 26 English letters together, so that they can make the pronunciation correspond to their own, after that, the English alphabet song can be played to help the students learn English, so that the children can remember the English alphabet under the cheerful, dynamic melody and rhythm, whether in non-native or native language situations, this method can be used for English teaching, so it seems that children's sensitivity to sound can become one of the feasible conditions of English education for Preschool Children in non-mother tongue situation.

2.2Using Picture Book Teaching

The feasibility study of English Education for Preschool Children in non-mother-tongue situation should consider not only the characteristics of preschool children but also the basic elements of learning English, which can meet these two requirements, besides nursery rhymes, we can also use picture books to teach English. The teaching of nursery rhymes embodies the ability of listening and speaking while learning English, while the teaching of picture books embodies the ability of reading and writing.

For example, the use of picture books in the teaching of English to preschool children can ensure that children are proficient in mastering English words and their corresponding Chinese meanings, also uses this kind of means to deepen the student to the English word memory degree, will not cause the word meaning not to correspond the situation. At the same time, the picture book teaching meets the learning characteristics of preschool children, who are more interested in the knowledge expressed in pictures, so it can ensure the initiative of preschool children in learning English. The essence of picture book teaching is to use pictures to help students learn English, so teachers can also make use of the rapid development of modern internet technology, it has become a common way for teachers to use picture books to teach English or other aspects when they are teaching preschool children by looking for English animation suitable for preschool children through the Internet, the presence of Petch has shown the usefulness of animation or picture book teaching to Preschoolers, who form natural memories while looking at pictures and animations, it is feasible to teach preschool children English in non-native language environment.

3.THE SIGNIFICANCE OF ENGLISH EDUCATION FOR PRESCHOOL CHILDREN IN NON-NATIVE LANGUAGE CONTEXT

Teaching English to preschoolers in non-native situations helps to improve their language acceptance and expression, and in the process, to develop their open-minded thinking and a sense of wide-ranging acceptance of new things, for Educational Groups, English Education for Preschool Children in non-native language situations can help teachers to improve their teaching ability, even in non-native language situations, we can also make use of the characteristics of preschool children and English to help children to remember and master English knowledge, and promote the process of learning English for young children, more and more preschoolers can learn English in a non-native language environment, so they can create a mother-tongue-like atmosphere in which all the children around are learning English, then the friends around them will be naturally motivated to learn English together.

4. CONCLUSION

English Education for preschoolers in non-native language settings is not without its feasibility, it is just that teachers or educational groups have not thoroughly studied the characteristics of preschoolers and English teaching methods, through the study of this topic, teachers can be aware of the need to constantly improve their own teaching ability, although preschool children in learning English without innate advantages, the experience and views of predecessors are worth learning from, however, it is also necessary to consider the feasibility of English education for Preschool Children in non-native language environment by combining their own practice with their own teaching situation. Therefore, we should understand the children's mental characteristics and learning needs in an all-round way, and can also provide some reference value when teachers carry out relevant research.

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Evaluation of the Dependence of Large-Scale Sports Events on Urban Meteorological Environment

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Abstract: In the specific process of holding large-scale sports events, we should give full consideration to the urban meteorological environment and do a good job in the evaluation of the urban meteorological environment dependence. Similarly, large sports events also have a negative impact on the urban meteorological environment. Therefore, relevant staff should reasonably assess the impact of urban meteorological environment to ensure the harmonious development of sports events and ecological environment. Therefore, this paper analyzes the specific ecological evaluation indexes of large-scale sports events held in the urban meteorological environment, makes dynamic balance adjustment, and makes a quantitative evaluation of the dependence of large-scale sports events on the urban meteorological environment, hoping to provide some references for relevant researchers.
Key words: Meteorological Environment; Large-Scale Sports Events; Quantitative Evaluation

1. INTRODUCTION

Nowadays, as people attach more importance to relevant sports, the number of large-scale sports events held in cities is also increasing, and the frequency has also been significantly improved. In cities, some common sports events, including marathon, Universiade and provincial games, etc., may attract more tourists and improve the economic benefits of cities, but they will also have some impact on the urban meteorological environment. At the same time, in the process of holding large-scale sports events, relevant government departments need to pay more attention to, and reasonably increase the economic investment in urban ecology and green environmental protection, so as to promote the friendly construction of urban ecological environment and promote China's sustainable development. the holding of large-scale sports events has both positive and negative impacts on the urban meteorological environment, which need to be judged based on the actual situation. Therefore, there is a certain degree of uncertainty, and relevant experts and scholars hold different views on this. Therefore, relevant researchers need to build specific quantitative analysis models and adopt statistical regression method, so as to reasonably evaluate the impact of large-scale sports events on urban meteorological environment. To be specific, relevant researchers can effectively evaluate the urban meteorological environment by combining the analysis of human settlements microclimate with the monitoring of air environment governance, so as to ensure the scientific nature and rationality of large-scale sports events and reduce the pollution and impact on the environment.

2. CORRELATION BETWEEN URBAN METEOROLOGICAL ENVIRONMENT AND LARGE-SCALE SPORTS EVENTS

To evaluate large sporting events held on the impact of urban meteorological environment, this paper adopted the related statistical regression methods, and specific meteorological environmental impact assessment model is established, the city meteorological environment construction belongs to the ecological system structure model of the chain, embodied in the social - economic - natural compound ecosystem. For people, urban construction is an inevitable trend in the process of social development, and urban meteorological environment has an important impact on people's health and life. Therefore, in order to maintain a good meteorological environment system, it is necessary to carry out effective urban environmental protection work. In the analysis of the impact of large-scale sports events on the urban meteorological environment, it is necessary to discuss the level of participation in the holding of sports events and the level of integration of the relevant masses. City related large-scale sports event is held by professional athletes and the general public, if for professional athletes, so most of the events are often held in indoor venues, of ecological destruction mainly reflects in such aspects as litter, and if for ordinary people, the city marathon, for example, then the masses of natural protection of ecological environment more seriously, so for the meteorological environment, also has certain constructive significance. By analyzing the sense of ownership and the level of participation of the athletes, the impact of the athletes on the urban meteorological environment can be effectively quantified, and the risk assessment mechanism can be developed to carry out the relevant protective design work reasonably. In this regard, descriptive statistical analysis method can be used to effectively construct relevant explanatory variable models about the impact of large-scale sports events on urban meteorological environment. By analyzing the variable distribution model, it can be found that the government has a direct impact on the importance it attaches to the holding of large-scale sports events and the construction of meteorological environment. When a large amount of money is invested, part of the money can

be used to build ecological environment, so as to reduce the impact on meteorological environment.

2.1 Empirical analysis and test

Above related constraint of urban environmental impact assessment parameters, and analyzed the specific variables, the air pollution index, the urban microclimate and the vegetation coverage is the evaluation of city constraint parameters, according to the large-scale sports events held under microclimate environment of ecological evaluation index regression analysis and the dynamic balance adjustment, can effective analysis under the different variables, the large-scale sports event held contribution to ecological environmental impact of the indicators and profitability indicators. According to the statistical regression analysis and the correlation autocorrelation characteristic analysis method, we can analyze the correlation of different control indexes on the influence of urban meteorological environment. According to the relevant results, it can be seen that there is an obvious positive correlation between the impact of sports events held at different monitoring points on urban meteorological environment. In this regard, by increasing the government support for urban ecological governance, the contribution of large-scale sports events to the improvement of urban meteorological environment can be effectively enhanced. Large-scale sports events can effectively improve the urban meteorological environment through short-term environmental protection governance, and their contribution index conforms to the standard normal distribution form.

2.2 Robustness test and regression analysis

The regression analysis of ecological assessment indexes and dynamic balance adjustment on the impact of large-scale sports events on urban meteorological environment can obtain the regression analysis results of urban ecological improvement gain and the cost of sports events under microclimate environment. Through the combination of sample statistics and environmental pollution index measurement, robustness can be effectively tested, so as to obtain the impact assessment results of large-scale sports events on urban meteorological environment under the control of different explanatory variables. According to the results, it can be seen that the dependence of large-scale sports events on the urban meteorological environment is characterized by controllability, and environmental governance countermeasures can be adopted to effectively control and reduce the impact on the meteorological environment.

3. INFLUENCE MECHANISM OF METEOROLOGICAL ENVIRONMENT FOR LARGE-SCALE SPORTS EVENTS

3.1 Concept of meteorological environment impact of sports events

Environment has a very rich meaning and content, according to China's environmental protection law of given the relevant concepts, can know the environment mainly refers to the process of human survival and development, all kinds of natural and artificial renovation formed by natural factors, specific needs involving water, air, land, sea, forests, wildlife, cultural relics, natural monuments, scenic spots and so on. As for the urban meteorological environment, there is no unified definition at present, and the definition of meteorological environment is also different in different research fields. In this paper, the urban meteorological environment is defined as the artificial environment formed by human adaptation, processing and transformation over a long period of time, which is the whole formed around the relevant environmental factors of urban population. the influence of meteorological environment mainly refers to the role of human beings in the process of specific economic activities and social activities, as well as the environmental changes caused by them. In this paper, the impact of large-scale sports events on the urban meteorological environment is mainly studied. Since the urban meteorological environment covers a wide range, it is necessary to make a specific definition based on the main characteristics of large-scale sports events. In this regard, the impact of large-scale sports events on the urban operating environment can be defined as the impact of large-scale sports events on the urban meteorological environment during the holding process and the changes that lead to the urban meteorological environment.

3.2 Analysis of impact of large-scale sports events on meteorological environment

The impact of large-scale sports events on urban meteorological environment has both positive and negative aspects. First of all, cities can comprehensively control the urban environment through the holding of large-scale sports events, and effectively enhance the concept of urban environmental protection through the publicity of environmental protection knowledge and other relevant means, so as to fully improve the urban environment, which can be summarized as the positive effect of environmental improvement. Secondly, in the early process such as venue construction planning and sporting event, often can bring a lot of people and logistics, which requires large sports events will be perfect preparation, hold, and the process of corresponding interaction on urban meteorological environment, causing acute ecological destruction, short-term focus the phenomenon such as environmental pollution and resources consumption. So, sports events in the preparation process of, ecological damage, construction, infrastructure construction, and project planning will be a corresponding impact on meteorological environment, and in the large sports events which occurred during the related problems such as environmental pollution and resource consumption should be synthetically considered, make sure you are able to improve the quality of urban environment, and promote the sustainable development of urban meteorological environment, and for the negative effects brought by the negative effects can be summarized as environmental risk.

4. CONSTRUCTION OF IMPACT ASSESSMENT SYSTEM OF LARGE-SCALE SPORTS EVENTS ON METEOROLOGICAL ENVIRONMENT

For the social service sector, when in environmental assessment work need to water environment, atmospheric environment, noise environment and meteorological environment produced by the environmental impact comprehensive assessment, and sports also belong to one of the social service sectors, so the sports meteorological environment impact assessment system build, also dealing with the related influence factors are fully considered. Associated with the same time, the researchers also should combine the main characteristics of sports venues construction projects and sports competitions held in the main characteristics of the analysis, the specific evaluation also deal with sports events by considering the related elements, such as large sports competitions held in the former deal with sports venues such as built in the first place, then can produce the corresponding to the ecological environment destruction, and in the construction process of the meteorological environment also can produce the corresponding influence, therefore need to include meteorological environmental damage in the design of the specific work. the holding of large-scale sports events often results in a large amount of energy consumption, so it is necessary to include the total energy consumption into the three-level index during the holding process.

According to the general classification of environmental pollution sources in China's social service industry and the unique characteristics of sports events, it is necessary to select a reasonable second-level index to measure the meteorological environment impact of sports events, specifically, environmental improvement and environmental risk.

4.1 Positive effects of environmental improvement

The preparation of sports events is an important catalyst to improve the urban meteorological environment. Some cities have incorporated environmental improvement into the event planning. In fact, in the 1990s, the international Olympic Games have paid more attention to environmental protection. the International Olympic Games hopes that the holding of the Olympic Games will further promote the effective development of environmental protection and governance in cities and surrounding areas, and enhance people's awareness of environmental protection, so as to create a relevant green heritage. In the process of holding sports events, there are two ways to improve the ecological environment of the host city.

First of all, comprehensive management of urban environment. Generally speaking, the host city of sports events will take this project as a specific opportunity, reasonably formulate relevant environmental protection plans and implement relevant protection measures, so as to carry out comprehensive governance of the urban environment, especially for some comprehensive and large-scale sports events. For example, through the 24th Olympic Games in Seoul, South Korea in 1988, the beautification plan was effectively completed, and through the implementation of relevant comprehensive environmental management measures, the dust and sulfur dioxide content in the atmosphere was effectively reduced, and the water quality was greatly improved, which made the Han River as long as 8 years of effective treatment. By holding the Olympic Games, Barcelona effectively withdrew a large number of obsolete factories in the coastal area, thus making the coastal area smoothly built into a beautiful and pleasant tourist resort. Then in 1996, during the Atlanta Olympic Games, the ecological environment was greatly improved through the establishment of energy-saving and environment-friendly aquatic center and rooftop solar system. In addition, about 30, 000 trees were planted in order to improve the air quality of the city. Then, in order to effectively carry out environmental protection work for the Nagano Winter Olympics in 1998 and change the location to build a related track, environmentally friendly and pollution-free tableware was introduced reasonably, which greatly improved its ecological environment. In Sydney, the new spirit of environmental protection was incorporated into the facilities and the biggest renovation project ever completed, creating the world's first solar-powered indoor stadium, known as the Green Stadium. In 2008, the Beijing Olympic Games held in China, no matter from site selection planning, scientific construction, clean transportation and waste management, etc have stepped up the implementation of environmental management measures and implement, and improve the air quality, control the urban water system, promote the urban greening, and strengthen the use of clean energy, comprehensive control of the environment of Beijing, and this makes our country effectively meet the green Olympic commitment in the Olympic bid.

Secondly, the awareness of urban environmental protection of local residents has been effectively enhanced. the holding of previous Olympic Games or National Games and other large-scale sports events has enabled the host countries to effectively carry out relevant environmental protection publicity work and make full use of the events, which has also stimulated the public's enthusiasm for environmental governance and made them more actively participate in relevant environmental protection work. the extent to which the public participates in environmental protection effectively reflects the environmental awareness and social civilization of a city. Environmental education was integrated into primary school textbooks during the Sydney Olympic Games to enhance environmental education for young people. As for the second resource, there are two ideas, one is to spread the message that it is everyone's responsibility to protect the environment, and the other is recycling. And the Sydney Olympic Games before the specific opening of the Olympic Games set up a related Olympic environmental forum, which makes the development of the Green Olympic Games has been greatly promoted. And after win the bid for the Beijing Olympic Games in China, also through the related education and publicity channels are effective to citizens to popularize the knowledge about ecology, as well as the process of the Olympics may bring city meteorological environment impact of related issues, and

the concrete solving measures and solutions, got the great support and public participation, which plays an important role in the development of green environment, also make people gradually to a healthy lifestyle, promote the sustainable development of the urban meteorological environment. In 2005, experts from all walks of life formed and set up a specific propaganda group, which carried out nearly 200 lectures, namely the audience reached more than 70, 000 people. At the same time, other forms of environmental protection publicity and education activities were also held, such as a series of competitions on water resources and environmental publicity activities such as waste classification. Among secondary indicators, environmental improvement of the first three indicators for the degree of urban environmental governance, general with sports venues construction project as the foundation, and the rationality of the project location, area of afforestation and surrounding areas of the degree of environmental improvement as the main reference basis, specific assessment by related personnel. the second three-level indicator is environmental protection publicity, which usually takes the event bidding report or planning content as the main reference basis and is evaluated by relevant experts.

4.2 Risk negative effect

First of all, the impact of the construction of stadiums and other related infrastructure on the urban meteorological environment. In order to effectively hold large sports activities, need large area to the city planning, as well as reasonable construction of sports venues and infrastructure, etc., the city meteorological environment is also more or less has some influence, such as its reduced the green area, pollution and destruction of the geological features, and affect the biodiversity, etc. In serious cases, it may exceed the tolerance threshold of the local natural system ecology, leading to its gradual decline from a higher natural system level to a lower natural system level. For example, during the winter Olympics in Vancouver in 2010, the Nordic ski slopes built by the city had a certain impact on the grizzly bear environment. In the process of holding the Sydney Olympic Games, part of farmland and forest land were occupied in the construction of the Red Treasure Bay Olympic Stadium. the construction of the ski resort will damage the local native vegetation, and if there are improper phenomena in the construction, the cultural landscape of the area will be damaged to some extent. During the construction period, the impact on the meteorological environment, including vegetation destruction, deforestation and the reduction of biological species and quantity, etc. Therefore, the key content of relevant assessment work is whether relevant protection measures such as vegetation regeneration and forest replanting should be considered in the project planning. If so, biomass and forest stock should be increased after the completion of construction. In addition, in the construction of stadiums and infrastructure, the construction stage and transportation process will also produce secondary pollution to the meteorological environment. To be specific, the exhaust gas and dust emitted by vehicles during construction will affect the environment, and at the same time, it will also have a certain impact on the water environment, including groundwater, construction waste water, domestic waste water and surface runoff.

Secondly, the influence of large-scale sports events on the urban meteorological environment. When sports events are held, they will also have a corresponding impact on the environment. In particular, the hosting of large sports events will cause a sharp increase in urban population in a short time due to the large number of people present, which may even exceed the ecological carrying threshold of the city, polluting and damaging the urban environment. To be specific, it mainly includes total carbon dioxide emission, water resource consumption, noise pollution, total energy consumption and total solid waste emission.

5. CONCLUSION

To sum up, with the continuous aggravation of environmental problems, relevant researchers need to strengthen the research on the impact of sports events on meteorological environment and make a reasonable assessment. the relevant departments should also pay attention to the impact of sports events on the urban meteorological environment, so as to further promote the sustainable development of the city. Related staff deal with sporting events held on the meteorological environment may lead to fully understand the relevant issues, and promote urban comprehensive governance and environmental protection concept, make the positive effect of sports events to improve the environment effectively, and through the related green means lower sports events for the effects of urban meteorological environment.

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