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A Preliminary Study of Development World Language Based on The BP Neural Network

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Abstract: To predict the population trends and provide a new location for the enterprise, we set up a language user distribution trend and location decision model. The trend of distribution of language users is based on the prediction model of language trend. We predict from the language model tracking trends in recent 50 years (1990-2040 years) and get the conclusion: with the increasing number of users, ranking speakers change every five years. Strong languages have been spread, but many weak languages have spread to the strong regional area. According to the location decision model, we provide suggestions to the enterprise site. Setting up too many offices is a loss of choice. It is also a binding decision algorithm based on it, but terms of additional information are different.

Keywords: Distribution of Language; BP Neural network; Reinforcement of Learning; Constraint of Decision

1. INTRODUCTION

There are currently about 6,900 languages spoken on Earth. About half the world's population claim one of the following ten languages (in order of most speakers) as a native language: Mandarin (Standard Chinese), Spanish, English, Hindi, Arabic, Bengali, Portuguese, Russian, Punjabi, and Japanese. However, much of the world's population also speaks a second language. When considering total numbers of speakers of a particular language (native speakers plus second or third, etc. language speakers), the languages and their order change from the native language list provided. The total number of speakers of language may increase or decrease over time because of a variety of influences including the language(s) used and/or promoted by the government in a country, the language(s) used in schools, social pressures, migration, assimilation of cultural groups and immigration and emigration with countries that speak other languages [1-5]. Besides, factors are not limited to these mentioned above. Moreover, in our globalized, interconnected world, there are additional factors that allow languages that are geographically distant to interact. These factors include international business relations, increasing global tourism, the use of electronic communications, social media, and the use

of technology to assist in quick and easy language translation. This paper predicts the population trends and provides a new location for the enterprise. Besides, we set up a language user distribution trend and location decision model.

2. THE MODEL I

2.1 Analysis of Factors

Firstly, it analyses the factors that affect the change of native speakers, including the language used and promoted by government, the language used by the school, the social pressure, the migration, assimilation of the cultural groups, the immigration, international business relations, global tourism, the use of electronic communications and social media. Finally, it can be transformed into five quantifiable factors: gross domestic product (GDP), total imports, total exports, total population and immigrant population.

2.2 The Trend of Language Prediction Model

2.2.1 The Trend of Language Model and Agent

We built a multi agent system using five variables, including total import of gross national product (GDP), total export, total population and immigrant population. In addition, we used 20 years of historical data from 1990 to 2010 and we used it as a training set from 2011 to 2017. The variables are data sets G, E, I, P, IP.

The last model predicts the factors that have a great impact on the distribution of users and takes them as the main parameters of the next model environment.

The model is derived from the reinforcement learning algorithm in machine learning. Its essence is the same as that of BP neural network, but its actual composition is different. In this model, there are two important topics.

Environment is considered to be the agent's environment, which is the main factor affecting agent. It is the set of algorithms and parameters. The parameters are G, E, I, P, IP and C (which are the total number of agents in this environment).

Agent refers to individuals in training. It is a set of training algorithms and parameters. It refers specifically to the parameters of the language user, C (C value is between 1 and 193.) It represents the 193 main countries in the world. The value of L (1-15) indicates the language of Chinese, English and so on.

In the model above, the state refers to the status of agents at every moment, including the influence of environment on agents. Action refers to the action and the agent's feedback on the environment. It depends on the agent's strategy.

Reward is the goal of improving learning. Specifically, rewards are reflected from the state of the environment to the reward. The agent's task is to maximize the long-term total rewards. It refers to the return of a single act caused by changes in the state of the environment. It means an immediate reward. This award defines what is right behavior and wrong behavior of agent. In this case, reward tells the agent how to do this in five ways and mathematically change the parameters of the agent. At the same time, reward is just training incentives. In training, the trend in various languages distributors is also a long-term goal, whether long-term or long-term incentive target not. This means the accumulation of rewards. We use the value to define what kind of behavior incentive to tell the agent is good and bad. Then, the value of the agent tells that your behavior is good or bad for a long time. In this accumulation, agents can reduce the deviation of training.

In this system, we have a set of state S , a set of behaviors A , a strategy P . If we have a strategy P , we can choose to conduct the next moment according to the status, as shown in the following formula:

$$A = P(S) \quad (1)$$

For the set of states each state s , we have a value corresponding reward $R(s)$. For each state in the sequence, we set P attenuation coefficient γ . Finally, we set the appropriate weighting function

$$VP(s_0) = E[R(s_0) + \gamma R(s_1) + \gamma^2 R(s_2) + \dots | s_0 = S, P] \quad (2)$$

Definitions the symbol E gross import. Given the current state and all past states, stochastic processes have a conditional probability distribution that depends only on the future state of the current state. In other words, given the current state of being conditionally independent of the past state (the historical path of the process), the stochastic process has a Markov attribute.

2.2.2 MDP and Agent

MDP considers the action of the next state of the system. It is concerned not only with the current state, but also with the action currently taken.

Markov decision Process (MDP)

S : Status settings (status)

A : A series of actions (action)

P_{ij} : Represents the probability of a state transition. It shows the probability distribution of other states that will be transferred from $s \in A$ to the current $s \in S$ state. For example, when the state S performs an action, the probability of transferring to s can be expressed as $p(s'|s, a)$

γ : (Discount Factor): damping factor [0,1]

R : Reward function (reward function)

The dynamic process of the MDP is as follows: The agent initial state is s_0 , and then an action a_0 is selected from a . After execution, the agent randomly

shifts the probability to the next states s_1 , $s_1 \in P_{ij}$:

P_{ij} : Then do an operation s_1 , it moves s_2 . Then execute a_2 , we can use the following figure to show the state transition process.

If you get reward R from State S and action A , MDP can also be represented as the following figure:

$$s_0 \xrightarrow{a_0} s_1 \xrightarrow{a_1} s_2 \xrightarrow{a_2} s_3 \xrightarrow{a_3} \dots \quad (3)$$

The reward function value is the comparison of different behavior in return. We can make a decision. The so-called "step three" is a step by step reward function. This is not enough, which leads to the value function (Value Function). It is also known as the discounted cumulative reward.

When we follow a strategy of P , we define the value function as follows:

$$V_s(s) = E[R(s_0) + \gamma R(s_1) + \gamma^2 R(s_2) + \dots | s_0 = s, P] \quad (4)$$

We write the above formula, which is shown as follows:

$$V_s(s) = R(s) + \gamma V_s(s) \quad (5)$$

In addition, when the strategy is in the s state, we can only determine the action a . But after s action a which is not only into the state, such as the same dice operation. We have possible states 6 if we use Behrman, we can get the following formula:

$$V_s(s) = R(s) + \gamma \sum_{s' \in S} P_{ij}(s') V_s(s') \quad (6)$$

According to our initial learning enhancement purposes, we can come to seek the purpose of V . It is in the current state of the S to find an optimal action strategy, shown as follows:

$$V_s(s) = R(s) + \max_{a' \in A} \gamma \sum_{s' \in S} P_{ij}(s') V_s(s') \quad (7)$$

This is the action value function.

That function is only related to the s value of our state. If it is s and a action, which is called the action value function. It is called the Q function shown as below:

$$Q(s, a) = E[R(s_0, a_0) + \gamma R(s_1, a_1) + \gamma^2 R(s_2, a_2) + \dots | s_0 = s, a_0 = a, P] = R(s_0, a_0) + \gamma Q(s', a') \quad (8)$$

From the formula, we can not only rely on state and strategy. The optimal strategy can also define MDP:

$$P = \operatorname{argmax} V_s(s), \quad (9)$$

For MDP solution, we use the action value iteration value function solution. It is called Q-learning. We can also see from the formula that it is an iterative way of values, because each time we update the value of the Q function instead of the strategy.

2.3 The Given Solution

2.3.1 The Solution to the Problem of A:

As shown in the Table 1, In the figure below, we proposed in 1990 ten most dominant language and 10 minority language.(small languages, such as the Danish language users) According to the trend of distribution model, we can draw the conclusion: with

the increase of the number of users of the language, speaker and speaker of the general ranking change every five years in a floating state ranking. The geographical distribution in the first language grown as the main body gradually, and various other languages mixed together.

2.3.2 The solution to the problem of B:

Table 1. Now (2018)(L1 is the first language, L2 is a second language)

Language	L1	L1 level	L2	L2 level	total
Mandarin	897	1	193	4	1090
English	371	3	611	1	982
Hindustan	329	4	215	2	544
Spanish	436	2	91	8	527
Arab	290	5	132	6	422
Malay	77	15	204	3	281
Russian	153	8	113	7	266
Bengal	242	6	19	13	261
Portuguese	218	7	11	15	229
France	76	17	153	5	229

Table 2. 50 Years Later (2068)(L1 is the first language, L2 is a second language)

Language	L1	L1 level	L2	L2 level	total
Mandarin	988	1	217	2	1205
English	356	3	613	1	969
Spanish	444	2	104	9	548
Arab	312	4	100	10	412
Hindustan	277	6	130	4	407
Russian	177	12	125	5	302
Portuguese	247	9	42	14	289
Indonesia	263	7	24	17	287
Bengal	206	11	29	16	235
Swahili	87	15	70	12	157

2.3.3 Solution to problem C:

In the case of population and population models instead of translation, the geographical distribution has changed, although the change may be based on the results calculated from the contemporaneous models, to a great extent. Among them, the great changes of mandarin, English, Spanish and Bengali have taken place in the same period. While Hindi, Portuguese, Russian and Arabic changed a little, Malay and French changed a lot. But the geographical distribution is shrinking.

3. THE MODEL II

3.1 Additional Symbols

The above flags and definitions are still valid. Here are some additional flags and definitions. By analyzing

After the speakers and the language user's ranking changes in the Table 2 below: it has changed for 50 years and now. The rank of French, Malay has been out of the top ten, while the rank of Indonesia Swahili has turned into the top ten. Other languages have also changed.

problem 1, we can use language to understand the world's population over the next 50 years. In the next 50 years, the growth trend of the Chinese and English populations is significantly greater than that of other languages. We therefore give priority to countries using English and Chinese and plan to establish offices in Asia, Africa and South America, North America and Oceania. Firstly, a reasonable classification is based on the following main language categories: Indo-European (48% of the world's population); Han Zang (25%); Niger, Congo (6 per cent); Afrikaans (5%); Malaya-Polynesia (5%); Dravidian (3%); Altaic (5%). Secondly, we determine the location of the office.

3.2 Model Basis Establishment of Multi-objective Decision Making Optimization Model

Table 3. Conclusions of new office

Short Term			Long Term		
Mainland	Country	Language	Mainland	Country	Language
Europe	Spain	Spanish	Europe	Spain	Spanish
	Russia	Russian		France	France
South Asia	Indonesia	Hindi language	South Asia	Malaysia	Malaysian
South America	Brazil	Portuguese	South America	Brazil	Portuguese
Africa	Arab	Arab	Africa	Arab	Arab
Oceania	Australia	English	Oceania	Australia	English

3.2.1 Determine the Determination of Variables

On the map, we need to set up offices to maximize revenue and cover a wider range of services.

The following variables can be used as decision variables: language type, language population and region.

3.2.2 Determination of the Target Function

In question 1, we know that the proportion of using the language in the world's population is correct. Besides, the establishment of the office has the following characteristics. The location of distribution should be reasonable and it should bring to the company more benefits.

Therefore, the goal of this website model is as follows: A large number of countries are involved in one language. The office has provided a good space for economic development in the region.

To make their new offices more global, they are based on six continent.(not include Antarctica).

3.2.3 Determination of Constraints

Determining constraints according to the hypothesis, we know that constraints include the following three aspects:

Constraint 1: Every continent has offices whenever it is possible. Constraint 2: No more than two offices on

the same continent. Constraint 3: The language used for the new office is the official language used by the locals. Under these three conditions, six districts are suitable for setting up offices. As it is shown in the Table 3.

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Analysis of Covid-19 Transmission Model Based on SEIR

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Abstract: In this paper, the SEIRAQI model is designed for the transmission characteristics of COVID-19 virus. In order to predict the development trend of the global epidemic, the countries in the world are divided into four categories. By studying the development of the epidemic in these four categories, the development of the global epidemic will be studied, and the number of confirmed cases and deaths worldwide will be predicted.

Keywords: Covid-19; Big data analysis; SEIR model

1. INTRODUCTION

At the beginning of 2020, coronavirus (2019-nCoV) pneumonia (COVID-19) epidemic broke out in Wuhan [1]. Since then, the disease quickly spread to other provinces and even neighboring countries in a short period of time along with the passenger flow during the Spring Festival. In such a severe situation of the new type of coronary pneumonia, Giulia [2] and Wei Yongyue [3] and others established appropriate mathematical models to predict the global development trend of new coronary pneumonia, and conducted reasonable research on the new type of coronary pneumonia and proposed suggest. Due to the presence of latent and invisible communicators in this epidemic, Xu Qi [4] and Hu Chuntao [5] improved and established the SEIRAQD infectious disease model based on the SIRD model. For these two types of special groups, Xie Jiarong [6] and Gan Mi [7] established models to predict the development trend of the epidemic more accurately. In view of the differences in the development level of various countries and regions and the differences in the severity of the epidemic, this paper selects four representative countries such as China, Brazil, Italy and the United States to apply the above SEIRAQD model, and analyzes the development of the global epidemic through the prediction results trend.

In order to predict the possible development and change trend of the global new crown epidemic, we selected some typical countries and regions to predict the development and change trend of the epidemic. Countries around the world are divided into four categories, namely, developed countries with more severe epidemics, developed countries with better epidemic control, developing countries with more severe epidemics, and developing countries with better epidemic control. The difference between developed countries and developing countries is mainly reflected

in the level of medical care. Among them, China represents developing countries with better epidemic control. Brazil represents developing countries with more severe epidemics. Italy represents developed countries with better epidemic control, and the United States represents developed countries with more severe epidemics.

Due to the presence of latent and invisible communicators in this epidemic, we improved and established the SEIRAQD infectious disease model based on the SIRD model to target these two special groups to more accurately predict the development trend of the epidemic. In order to better predict the development trend of the epidemic on a global scale, we have selected China, Brazil, Italy, and the United States as four representative countries to apply the above based on the differences in the development level of various countries and regions and the differences in the severity of the epidemic. The SEIRAQD model makes predictions and analyzes the development trend of the global epidemic through the prediction results.

2. THE ESTABLISHMENT AND SOLUTION OF MODEL

2.1 Seiraqd Model

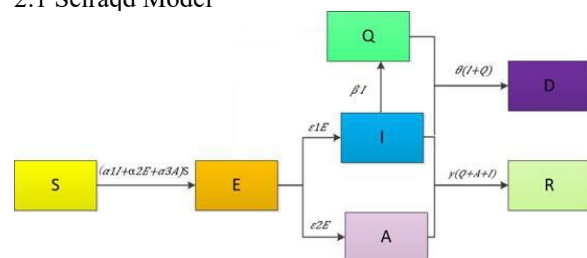


Figure 1 SEIRAQD Infectious Disease Model

With the development of the epidemic, strict quarantine measures have been adopted all over the world to conduct centralized medical observation and isolation of confirmed cases and close contacts of suspected persons. Taking into account the particularity of new coronary pneumonia, some patients are in the incubation period (E), and patients in the incubation period have a certain probability of becoming asymptomatic infection (A). The symptoms are not obvious but the infectious ability is also present. It is difficult to be isolated, but the infectious ability is relatively weak. On the basis of the SIRD model, we added the incubation period compartment (E), the asymptomatic infected compartment (A) and the quarantine compartment (Q). Patients under diagnosis

are quarantined at a beta ratio. The SEIRAQD infectious disease model is shown in Figure 1. According to the above flow chart, we have the following model:

$$\left\{ \begin{array}{l} \frac{dS}{dt} = -\alpha_1 IS - \alpha_2 ES - \alpha_3 AS \\ \frac{dQ}{dt} = \beta I - (\gamma + \theta)Q \\ \frac{dA}{dt} = \varepsilon_2 E - \gamma A \\ \frac{dE}{dt} = \alpha_1 IS + \alpha_2 ES + \alpha_3 AS - (\varepsilon_1 + \varepsilon_2)E \\ \frac{dI}{dt} = \varepsilon_1 E - (\gamma + \beta + \theta)I \\ \frac{dR}{dt} = \gamma(Q + A + I) \\ \frac{dD}{dt} = \theta(I + Q) \end{array} \right.$$

2.2 The Collection And Process Of Data

By querying the literature and official information, the initial values of the model 1 built for problem one is listed in Table 1. Among them: the research data in China is from January 26, the research data in the United States is from March 11, the research data in Brazil is from April 7, and the research data in Italy is from March 11.

Next, we study variable parameters. Variable parameters have a corresponding relationship with Table 1 Initial values of the model:

Country	China	United States	Italy	Brazil
Data on the first day from the research date	2630	969	10590	1648
Total population of country	1,400,050,000	324,459,463	59,359,900	209,288,278

After evaluating the actual conditions and protective measures in the four countries or regions, we give the Table 2 Values of Variable Parameters:

Parameters/ Country	China	United States	Italy	Brazil
Effective contact rate between infected and susceptible people α_1	0.32	0.41	0.36	0.38
Effective contact rate between latent and susceptible people α_2	0.06	0.11	0.08	0.09
Effective contact rate between asymptomatic infected persons and susceptible persons α_3	0.04	0.09	0.05	0.08
Probability of infected person (I) being isolated β	0.95	0.28	0.6	0.3
The probability of the latent person (E) entering the infected person's compartment (I) ε_1	0.88/6	0.88/6	0.88/6	0.88/6
The probability of latent person (E) entering the asymptomatic infected person's compartment (A) ε_2	0.12/6	0.12/6	0.12/6	0.12/6
Disease mortality θ	1/500	1/450	1/170	1/450
Disease cure rate γ	0.05	0.06	0.06	0.05

2.3 Prediction Of Solution Of Model

After the above analysis and correction of the data, the model we have established can better represent the historical epidemic data trend of the selected four countries or regions. Based on reasonable assumptions,

different policies of different countries. The analysis is as follows:

City closure, village closure and community closure: The adoption of this kind of measures can effectively reduce the number of residents going out and the number of contacts, and greatly reduce the contact rate $\alpha_1, \alpha_2, \alpha_3$.

Individual isolation: It isolates the confirmed patients and patients in the incubation period immediately to prevent the confirmed patients from continuing to spread the virus. That is to increase the probability of the infected person being isolated β .

Nucleic acid testing: If large-scale nucleic acid testing is performed on people who may be latent persons, it can effectively exclude latent persons and asymptomatic infections, greatly reducing the spread of the disease, that is, increasing the probability of quarantine of infected persons β .

Personal protection: People can effectively reduce the probability of virus transmission by wearing masks and frequent hand washing and disinfection when going out, reducing effective contact and greatly reducing the contact rate $\alpha_1, \alpha_2, \alpha_3$.

Medical system: Four countries or regions have different medical systems. The completeness and capacity of the medical system are related to the cure rate γ .

value of the variable parameter in Table 2

the SEIRAQD infectious disease model is simulated in four countries and regions, the development trend of the epidemic is predicted, and the actual epidemic data is compared with the data predicted by our model.

(1) Forecast of the development and change trend of

the epidemic in China

Substituting the parameters and initial values of the Chinese region, using Matlab to program the solution, the deduction result is obtained, as it shows in Figure 2:

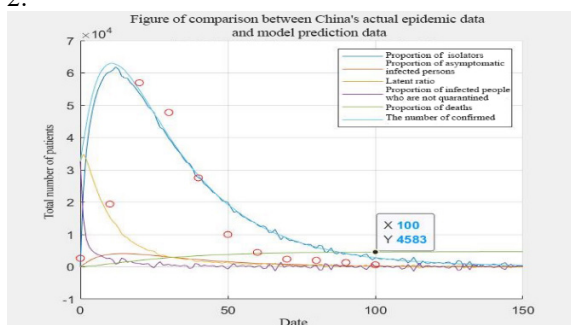


Figure 2 Comparison of Actual Epidemic Data and Model Prediction Data in China

It can be seen from Figure 2 that the SEIRAQD model has a good description of the number of real-time infections in China. The number of confirmed cases is closer to the actual situation (the red circle represents the actual situation of existing infected persons in China during the epidemic). Therefore, this model can be used to predict the number of infections in China. It is predicted that the number of deaths in China at the end of the epidemic will be 4583, which is very close to the actual number of 4643 deaths in China within 100 days from January 26. Therefore, this model can be used to predict the number of deaths in China.

(2) Forecast of the development trend of the Brazilian epidemic

Substituting the parameters and initial values of the Brazilian region, using Matlab to program the solution, the deduction result is obtained, as it shows in Figure 3:

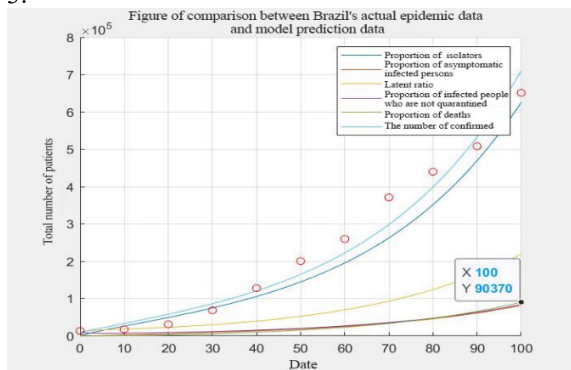


Figure 3 Comparison of Actual Epidemic Data and Model Prediction Data in Brazil

It can be seen from Figure 3 that the SEIRAQD model has a good description of the number of real-time infected people in Brazil, so this model can be used to predict the number of infected people in Brazil. It is predicted that the cumulative death toll in Brazil on August 3 is 90,370, which is very close to the actual death toll in Brazil of 94,130, so this model can be used to predict the death toll in Brazil.

(3) Forecast of the development trend of the Italian epidemic

Substituting the parameters and initial values of the Italian region, using Matlab to program the solution, the deduction result is obtained, as it shows in Figure 4:

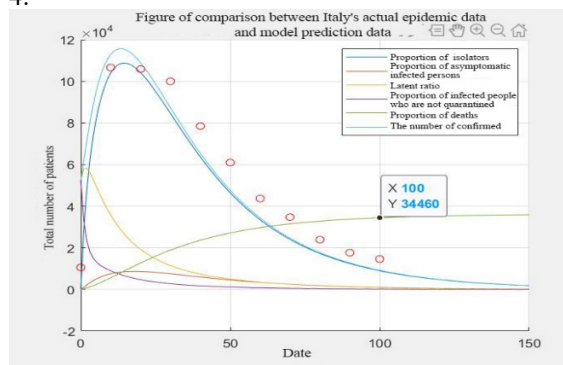


Figure 4 Comparison of Actual Epidemic Data and Model Prediction Data in Italy

It can be seen from Figure 4 that the SEIRAQD model has a good description of the number of real-time infected persons in Italy. Therefore, this model can be used to predict the number of infections in Italy.

It is predicted that the cumulative death toll in Italy on July 24 is 34460, which is very close to the actual death toll of 94130 in Italy. Therefore, this model can be used to predict the number of deaths in Italy.

(4) Forecast of the development trend of the epidemic in the United States

Substituting the parameters and initial values of the US region, using Matlab to program the solution, the deduction result is obtained, as it shows in Figure 5:

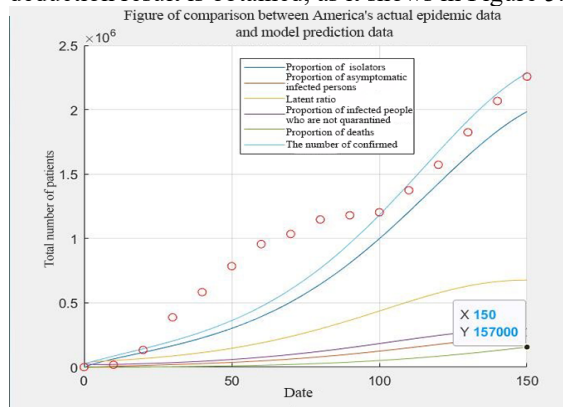


Figure 5 Comparison of Actual U.S. Epidemic Data and Model Forecast Data in the United State

It can be seen from Figure 5 that the SEIRAQD model has a good description of the number of real-time infected persons in the United States. Therefore, this model can be used to predict the number of infections in the US.

It is predicted that the cumulative death toll in the United States on July 24 is 157,000, which is very close to the actual death toll of 148,848 in the United States. Therefore, this model can be used to predict the number of deaths in the United States.

Therefore, the SEIRAQD model can be used to predict developed and developing countries where the epidemic is more severe, as well as developed and developing countries where the epidemic is well controlled. Therefore, we can use this model to predict the development trend of the global epidemic, and predict the number of infected people and deaths worldwide.

3. CONCLUSION

Through population data surveys, it analyzes the population data of developing countries with better epidemic control, developing countries with more severe epidemics, developed countries with better epidemic control, and developed countries with more severe epidemics. Besides, it substitutes them into the corresponding initial population data, and the corresponding prediction results of the number of confirmed cases and the number of deaths can be obtained. Moreover, the development trend of the global epidemic situation is predicted. Finally, we add the total population of these four categories to get the global number of diagnoses and deaths, as it shows in the following figure:

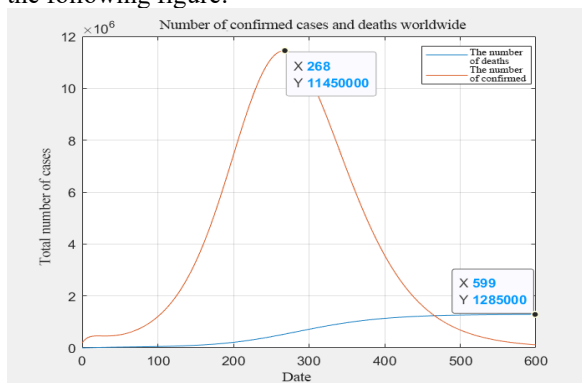


Figure 6 The Number of Confirmed Cases and Deaths Worldwide

From the figure, we can clearly see that from the beginning of the outbreak to the 270th day (approximately nine months), the number of confirmed diagnoses showed an upward trend, and reached a peak around the 270th day of the beginning of the epidemic. It reached 11.45 million. Since then, the number of confirmed cases worldwide has gradually declined, and the number of confirmed cases has almost dropped to zero around the 600th day. At this time, the new crown pneumonia epidemic has basically ended. In the end, the global death toll from

the epidemic was approximately 1,285,000.

After the Chinese government's strict control and prevention, the epidemic in China has been stable and controllable. We believe that China's epidemic development curve has gone through a complete infectious disease development cycle. It is meaningful to analyze the impact of variable parameter changes caused by prevention and control measures on the trend of the new crown epidemic on the existing Chinese epidemic data.

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Analysis of Equity Incentive Based on Industry-Financial Integration Model

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Abstract: In recent years, there are numerous cases in which management's excessive earnings management leads to the misrepresentation of financial statements, which reduces the role of equity incentives. Combine business indices with financial indices to build the analysis framework can avoid the deviation of single aspect to measure the performance of enterprises. This model is conducive to reducing information asymmetry between managers and shareholders, helping to make decisions, formulating reasonable equity incentive schemes, and creating more value for enterprises. M Company is in software industry, which market cap ranks industry average. This paper takes M's three-time equity incentive program as an example, combined with business indices and financial indices to analyze the implementation of the equity incentive plan. And it proposed three problems in M's equity incentive plans, including the performance appraisal indices and the incentive object do not match, the incentive model is not targeted and the performance appraisal indices value is not reasonable. In order to enhance internal management, M should develop equity incentive plan according to the staff functions, combine business and financial indices to measure company performance, and add industry comparison indices into the analysis framework.

Keywords: Industry financial integration; Equity incentives; Company performance; High-tech enterprises

1. INTRODUCTION

With the development of capital market, in order to weaken the principal-agent problem caused by the separation of enterprise ownership and management rights and motivate executives work hard to enhance the value of the company, more and more companies have begun to implement equity incentive plans [1]. Equity incentive means that when the company's performance reaches the assessment standard, the management and core employees will get a certain amount of company stock or stock options in return. Since the China Securities Regulatory Commission issued the "Measures for the Administration of Equity Incentives of Listed Companies (Trial)" in 2005 and the "Memorandum on Matters Related to Equity Incentives" by the China Securities Regulatory

Commission" in 2008, China's equity incentive system has been continuously improved, which have made tremendous contributions in dealing with the financial crisis, enhancing corporate market value and enhancing human resource management [2-3]. Especially for high-tech enterprises, the equity incentive system helps them obtain lower financing costs in the early stages of development, and attracts a large number of outstanding talents at home and abroad during the rapid development and expansion period, enabling them to achieve dual growth in market share and financial income [4-10].

The key to the implementation of the equity incentive plan is whether the performance evaluation conditions can be met, so the selection of performance evaluation indices is crucial. In 2016, the Ministry of Finance issued the "Basic Guidelines for Management Accounting", which for the first time proposed the concept of "industry and financial integration". The document pointed out that accounting work should be embedded in the business process in order to effectively play the accounting and supervision functions of accounting work. Incorporating business indices into performance appraisal indices can effectively reduce executive manipulation space and promote the further development of the equity incentive system [11-15].

As a growth company, M's business level and development stage are comparable to the industry average. So it has a broad reference value. This article selects the three equity incentive plans implemented by M Company for research, which can provide a reference for the design of equity incentive schemes of other companies in software industry.

2. IMPLEMENTATION OF THE M COMPANY'S EQUITY INCENTIVE PLANS

The case selected in this article is Anhui Science and Technology Information Technology Co., Ltd. (hereinafter referred to as M). M Company launched two stock option incentive plans and one restricted stock incentive plan in 2011, 2014 and 2017, respectively. The three equity incentive plans and implementation results are shown in Table 1.

The performance indices of the first equity incentive plan evaluated the company's growth ability, profitability and R&D innovation ability, and the

indices were set relatively comprehensively. Moreover, based on the three-year average net profit as the compound target growth rate, the target value of the index is relatively reasonable. Judging from the implementation, all equity exercises in this equity incentive plan, except for those who left the company. It is also proved that the exercise conditions were more reasonable.

From the point of view of index selection, the performance evaluation indices of the second equity incentive plan still use the fixed growth rate of net profit and the rate of return on net assets, culling the growth rate of invention patents. The company's strategy is to expand the market and strengthen R&D. Both goals require huge up-front investment, which is bound to have an impact on its net profit growth and shareholder earnings. From the point of view of the setting of indices target value, the target value of the indices are too high and not consistent with the

strategy. Too high a goal deprives employees of motivation, so equity incentives can hardly achieve their intended purpose.

From the perspective of unlocking conditions, there are also some problems in the selection of performance indices in the restricted stock incentive plan. First, the operating income growth rate can only reflect the company's sales growth. From a market point of view, reaching the growth rate can only indicate that the product occupies the target market, but it cannot reflect the company's overall operating efficiency and capital use efficiency. Second, the unlocking conditions are single and it does not correspond to the work content of the incentive objects. The incentive objects include management and R&D personnel. The operating income growth rate reaching the target value cannot directly prove the management ability of the management and the innovation efficiency of the R&D employees this year.

Table 1. Implementation of equity incentive plan

	If it meet the exercise conditions (unlocking conditions)			progress status
	The first exercise period granted for the first time (Unlocked sale period)	First grant of second exercise period (Reserved to grant the first unlocked sale period)	The third exercise period is granted for the first time	
First equity incentive	a=1.2 The net profit growth rate in 2012 was 85.18% Met exercise conditions	a=1.2 2013 net profit growth rate was 216.90% Met exercise conditions	a=1.2 2014 net profit growth rate was 318% Met exercise conditions	Full exercised
Second equity incentive	The net profit growth rate in 2014 was 36%; ROE=10.24%; The net profit growth rate in 2015 was 44.49%; ROE=6.82%; Did not meet exercise conditions	The net profit growth rate in 2016 was 16.58%; ROE=3.95%; Did not meet exercise conditions	The net profit growth rate in 2017 was 64.05%; ROE=4.75%; Did not meet exercise conditions	Stock option cancellation
Restricted stock incentives	The fixed growth rate of operating income in 2017 was 63.97%; The fixed growth rate of operating income in 2018 was 138.44%; Met unlock conditions	The fixed growth rate of operating income in 2018 was 138.44%; Met unlock conditions	-	2 incentive objects unlocked 60%, all others unlocked

3. BUSINESS PERFORMANCE ANALYSIS OF M'S EQUITY INCENTIVE PERIOD

3.1 MARKET VALUE

(1)P/E ratio

The price-earnings ratio can reflect investor expectations. In recent years, investors have high expectations of the industry as a whole, so the industry's overall price-earnings ratio is higher than other industries. However, as shown in Table 2, the price-earnings ratio changes of M are not always synchronized with the changes in the industry average.

In 2017 and 2018, the average industry price-earnings ratio was 58.05, and the M price-earnings ratio was 127.41. Investors' recognition of M's stock price far exceeded the industry level. Judging from the superposition of the implementation effect of equity incentives and the overall level of the industry, the positive impact of the previous two equity incentives on the price-earnings ratio is not significant. During the third equity incentive period, investors underestimated the industry as a whole, but still maintained a high expectation of M company stocks

valuation.

Table 2. 2011-2018 M and software industry price-earnings ratio

Index/Year	2011	2012	2013	2014	2015	2016	2017	2018
M Company P/E ratio	66.54	63.04	80.51	55.08	109.19	71.74	171.39	83.43
Industrial P/E ratio	44.72	37.93	66.29	78.10	115.23	81.98	66.12	49.97

Data source: <http://www.resset.cn/>

(2)Tobin'Q

Tobin'Q reflects the relative size of the company's current value and capital cost. As shown in Table 3, M company's Tobin'Q value fluctuated between 4.73 and

7.89 from 2011 to 2018, indicating that the company's ability to create value is high. And it can be financed through the issuance of stocks to achieve wealth re-creation.

Table 3. 2011-2018 M Company Tobin'Q

Index/Year	2011	2012	2013	2014	2015	2016	2017	2018
Tobin'Q	6.77	7.78	6.74	5.57	6.84	4.73	7.89	4.67
Market value (100 million)	90.68	118.28	232.84	226.68	495.37	388.32	875.15	586.51

Data source: <http://www.resset.cn/>

3.2 R&D INVESTMENT

As a high-tech enterprise, one of the main targets of M's equity incentive plan is the R&D personnel. As can be seen from Table 4 and Figure 1, the company's R&D employees continue to increase, accounting for more than 60% of the total number of employees. But the proportion of leading companies in the industry, UFIDA and Inspur, are 31% and 47%. Since 2013, M's R&D investment has increased year by year, and the

capitalizable R&D investment has also increased year by year. This shows that since the implementation of the equity incentive plan, the company's R&D capabilities have continued to increase, and the conversion efficiency of investment into research results has continuously improved. The above shows that the equity incentive plan can promote the company's R&D level and the construction of the R&D team.

Table 4. 2013-2018 M company R & D investment

Index/Year	2013	2014	2015	2016	2017	2018
Capitalized R&D investment (100 million yuan)	-	-	2.39	3.72	5.49	8.34
Total R&D investment (100 million yuan)	3.67	5.18	5.77	7.09	11.45	17.73
Proportion of capitalized R&D investment (%)	-	-	41.48	52.43	47.96	47.02
Number of R&D personnel	-	-	1998	3678	5739	6902
Proportion of total employees (%)	-	-	67	61.92	66.28	62.92

Data source: <http://www.resset.cn/>

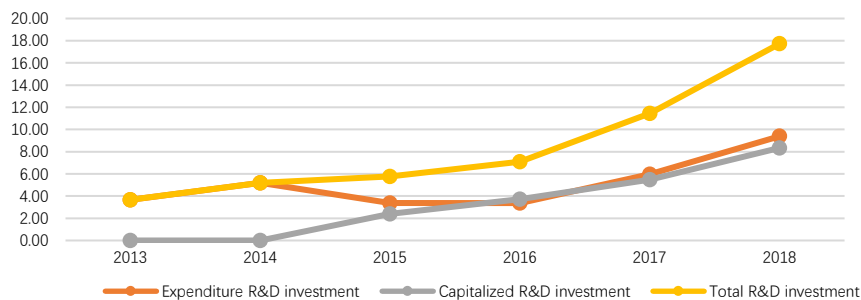


Figure 1. 2013-2018 M company R & D investment trends

4. FINANCIAL PERFORMANCE ANALYSIS OF M'S EQUITY INCENTIVE PERIOD

4.1 SOLVENCY

Solvency includes short-term solvency and long-term solvency. The indices used to measure short-term solvency are the current ratio and the quick ratio. As can be seen from Table 5, during the eight years, M's current ratio and quick ratio showed a downward trend and the decline was obvious. Compared with the same industry, M's short-term solvency is located in the bottom 30% of the industry, which is far behind the industry average.

The asset-liability ratio can be used to measure long-term solvency. Over the past eight years, M's asset-liability ratio has continued to rise from 17.15% to 46.34%, ranking the bottom 30% in the same industry ranking. Since the asset auction income is usually about 50% of its book value during corporate liquidation, M belongs to the software industry and has more special equipment. In liquidation, the asset liquidation capacity is usually lower than the average level of various industries. Therefore, 46.34% means the company's comprehensive compensation Insufficient debt capacity may present debt risks.

In addition, M has major guarantees in the past three years, which may bring debt repayment risk. Taken

together, M has immediate debt repayment pressure and its comprehensive solvency is poor.

Table 5. M company's debt solvency indices for 2011-2018

Index/Year	2011	2012	2013	2014	2015	2016	2017	2018
Current ratio	4.86	3.39	3.76	2.38	2.98	2.19	1.61	1.34
Quick ratio	4.57	3.08	3.56	2.19	2.64	1.85	1.25	1.09
Debt asset ratio	17.15%	20.00%	20.02%	24.54%	22.25%	30.68%	40.39%	46.34%

Data source: <http://myhexin.com/>

4.2 OPERATING CAPACITY

Operating capacity refers to the ability of a company to produce and operate. In this analysis, two indices were selected: accounts receivable turnover rate and inventory turnover rate.

The accounts receivable turnover rate reflects the contribution of accounts receivable to operating income. Since income will eventually be expressed as operating cash flow and cash stock, the quality of

accounts receivable should also be matched with cash. As shown in the Table 6, Table 7, Figure 2 and Figure 3, with the increase in the turnover rate of accounts receivable, the net cash flow and cash stocks generated from operating activities have maintained rapid growth. The increase in credit sales has actually brought about an increase in cash flow, and the turnover rate of accounts receivable of M is a benign growth.

Table 6. M Company's operational capacity indices from 2011 to 2018

Index/Year	2011	2012	2013	2014	2015	2016	2017	2018
Account receivable turnover	2.44	2.29	2.32	1.90	1.91	2.06	2.50	2.66
Inventory turnover	5.42	5.20	5.62	5.21	5.18	3.58	3.54	4.10

Data source: <http://myhexin.com/>

Table 7. Accounts receivable and cash indices of M Company in 2011-2018

Index/Year	2011	2012	2013	2014	2015	2016	2017	2018
Account receivable turnover	2.44	2.29	2.32	1.90	1.91	2.06	2.50	2.66
Net cash flow from operating activities (100 million yuan)	1.18	1.62	2.96	4.20	5.16	2.99	3.63	11.48
Cash ending balance (100 million yuan)	6.59	5.29	17.55	10.67	26.45	25.00	26.20	22.07

Data source: <http://myhexin.com/>

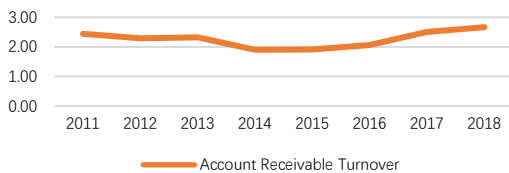


Figure 2. M Company's accounts receivable turnover from 2011 to 2018

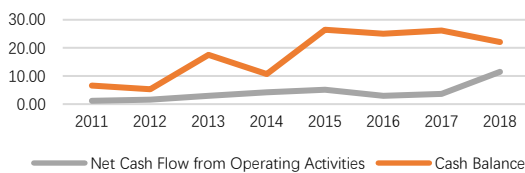


Figure 3. M Company's operating cash flow and cash stock from 2011 to 2018

The inventory turnover rate reflects the contribution of inventory investment to operating income. As shown in Figure 4, M's inventory turnover rate showed a trend of declining and then gradually increasing. This is because when an enterprise accepts an order, it will first increase the inventory, and then gradually transfer the inventory to the project under construction, and then gradually confirm the income according to the completion of the project. Therefore, before the revenue is recognized, the inventory book value is

larger and the inventory turnover rate is lower. Analysis of the changes in the proportion of inventory components in the four years found that M's inventory investment was reasonably carried out in accordance with production needs. The inventory occupancy funds did bring an increase in operating income and good operating capacity.

Taken together, M has strong operating capabilities and high asset utilization efficiency, which has a positive effect on its overall operation.

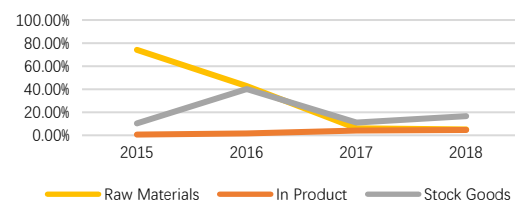


Figure 4. Changes in the proportion of M's inventory components in 2015-2018

4.3 PROFITABILITY

Profitability is a company's hematopoietic ability. From the perspective of asset turnover, it can be measured by the rate of return on assets. From the perspective of product efficiency and shareholders' equity, it can be measured by the profit margin of sales and the return on net assets.

The return on assets reflects the comprehensive

profitability of the enterprise. In the eight years, M's return on assets fell by about 8%, the net sales margin fell by about 16%, and the total asset turnover increased by 6%. It can be seen from Table 8 that the net interest rate of sales is the main factor causing the return on assets to fall. For eight years, M's net sales rate has been decreasing, and it is downstream in the industry. In addition to the impact of the increase in operating costs due to business expansion, the substantial increase in R&D investment since 2014 has also adversely affected the sales net interest rate indices over the years.

The return on net assets is an important index of the performance evaluation of the previous two equity incentives. From the perspective of development trends, the return on net assets has been declining until a slight recovery in 2018. From the perspective of the Table 8. 2011-2018 M company profitability indices

Index/Year	2011	2012	2013	2014	2015	2016	2017	2018
Sales margin	23.80%	23.18%	22.21%	21.88%	17.46%	14.96%	8.80%	7.81%
ROA	12.26%	11.57%	9.73%	8.25%	6.29%	5.61%	4.64%	4.48%
ROE	14.36%	13.62%	11.26%	10.55%	8.38%	7.23%	6.32%	7.65%

Data source: <http://myhexin.com/>

4.4 GROWTH CAPACITY

Growth capacity refers to the company's ability to further obtain funds for operation and development through operation or financing. The following analysis is based on operating income and net profit.

The growth rate of operating income evaluates its growth ability by measuring the speed of business expansion. It can be seen in Table 9, the growth rate of M's operating income fluctuated and rose, with an average value of the top 10% in the industry. During the first incentive period, M's operating income increased at a rapid rate, with an increase of about 14%. During the second incentive period, the growth slightly slowed down. With the implementation of the restricted stock incentive plan, this indicator has increased. Overall, the operating income growth rate and the incentive effect show a high degree of homogeneity, which generally shows a positive correlation, indicating that equity incentives have a more obvious impact on the growth of operating

Table 9. M Company's growth capability index from 2011 to 2018

Index/Year	2011	2012	2013	2014	2015	2016	2017	2018
Net profit year-on-year growth rate	31.13%	37.53%	52.95%	36.00%	12.09%	13.90%	-10.27%	24.71%
Operating income growth rate	27.74%	40.74%	59.92%	41.60%	40.87%	32.78%	63.97%	45.41%

Data source: <http://myhexin.com/>

5. CONCLUSIONS

From the perspective of business indices, since the implementation of the three equity incentive plans, the market has recognized M's ability to create wealth and continue to look up. The equity incentive plan has enabled M to attract more outstanding R&D employees, and the level of R&D has continued to increase.

From the perspective of financial indices, M's

stage of equity incentives, during the first incentive period, it is roughly the same as the industry average of the same period; the second incentive period lags behind the industry average and is also lower than the company's historical level. It has risen after the implementation of the restricted stock incentive plan, but it is still far from the industry average. It is undeniable that the use of private placement of shares has increased the total share capital, which has an adverse effect on the return on net assets. However, compared with other companies that also adopt the directional additional issuance method to implement the equity incentive plan, such as ZTE and Neusoft Group, the equity incentive plan of M Company has no positive effect on the profitability reflected by shareholders' equity.

income.

The year-on-year growth rate of net profit is the growth rate of the net profit this year compared with the net profit of the previous year. During the eight years, the net profit growth rate of M Company showed a downward trend of fluctuation. The net profit growth rate during the first incentive period fluctuated and increased, and continued to fall to a negative value in 2017 during the subsequent second incentive period. This may be related to two reasons. One is that projects such as the smart city and the political and legal system are in the construction period, and a large amount of the cost has not yet been recovered. The other is that the performance indices of the second equity incentive plan are not eligible, resulting in insufficient employee motivation. The incentive effect of restricted stocks appeared in 2018, and the specific performance was that the net profit growth rate increased sharply that year.

operating capacity and growth capacity have been significantly improved, the company's business scale continues to expand, and operating income has grown rapidly. However, its solvency and profitability performance is not good. There is short-term debt risk in terms of solvency, and its comprehensive performance is not good. Profitability has not been significantly improved with the expansion of business scale, and the ability to convert operating income into

profit needs to be improved. It can be seen from the comprehensive business indices and financial indices that the selection of the performance evaluation indices and the final implementation effect of the equity incentive plan have a significant impact on the financial indices, but the implementation effect has no significant impact on the business indices.

6. SUGGESTIONS

The three equity incentives of M have problems such as the non-targeted equity incentive model, unreasonable performance evaluation index setting, and mismatch with the incentive target. The ultimate goal of equity incentives is to encourage employees to promote company performance and create value.

As a growing high-tech enterprise, M company should consider determining the equity incentive plan from various aspects. First, the performance evaluation standards among the R&D personnel, sales personnel, and management personnel should be determined separately, and various indices should be set up at the department and management levels to measure individual performance.

Second, it should improve the performance evaluation index setting, and jointly measure the company's performance based on the company's strategy, combined with the business perspective and the financial perspective. The business perspective can also introduce stock price indices and market share indices to avoid the misrepresentation of accounting information under earnings management and cause the stock incentive plan to fall into the form.

Third, when setting the performance evaluation index value, the performance goals and the company's development strategy is combined to avoid the situation where the goal is too high and the goal is too low to lose meaning, so that the stock incentives effectively encourage employees. In addition to the company's historical indices, M should also add industry comparison indices to performance evaluation system. Comparing with dynamic industry indicators is more conducive to its accurate positioning and consummation of its internal governance structure.

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Comparison of the Properties of Function, Derivative Function, Anti-derivative

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Abstract: In this paper, the properties of function, derivative and antiderivative are summarized, based on the existing research, for the comparison of periodicity and boundedness, by adding conditions, we get some new conclusions.

Keywords: Derivative; Anti-Derivative; Parity; Periodicity; Boundedness

1. INTRODUCTION

Calculus deals with functions, in teaching, the first thing to be studied is the basic properties of functions: parity, periodicity, boundedness, mastering these basic properties is very helpful for solving some problems. If a function has some basic properties, can we conclude that its derivative and its anti-derivative also have some basic properties? If not, can we get the property by putting in some condition? The article will examine each of these issues one by one. For the convenience of research, let's say that the function $f(x)$ involved in this paper exists the derivative function $f'(x)$ and the original function $F(x)$ in the given interval. So the variable upper bound integral $\int_0^x f(t)dt$ is one of its anti-derivatives.[1-5] And $\int_a^x f(t)dt = \int_a^0 f(t)dt + \int_0^x f(t)dt$, When a is an arbitrary constant, $\int_a^0 f(t)dt$ is also an arbitrary constant. Then $\int_a^x f(t)dt$ represents any anti-derivatives of $f(x)$, and when $a = 0$, $\int_a^x f(t)dt = \int_0^x f(t)dt$.

2. COMPARE THE PROPERTIES OF A FUNCTION WITH ITS DERIVATIVE

Property (1): If $f(x)$ is even function, its derivative $f'(x)$ is an odd function.

Property (2): If $f(x)$ is an odd function, its derivative $f'(x)$ is an even function.

Property (3): If $f(x)$ is a periodic function, its derivative $f'(x)$ is also a periodic function with the original period.

For properties (1),(2),(3), literature [3] has given proof, here is an example of application.

Example1. Set $f(x)$ is a second-order differentiable odd function with period 4, and $f(\frac{3}{2}) > 0$, $f'(\frac{3}{2}) > 0$. Then compare with the size of $f(-\frac{3}{2})$, $f'(\frac{5}{2})$, $f''(0)$, and explain the reasons.

Solution: Because $f(x)$ is an odd function, then

$f(-\frac{3}{2}) = -f(\frac{3}{2}) < 0$. So $f'(x)$ is an even function, $\therefore f''(x)$ is an odd function, and $f(x)$ is a second-order differentiable function, $\therefore f''(0) = 0$. $\therefore f(x)$ is a second-order differentiable function with period 4, and $f'(\frac{3}{2}) > 0$,

$\therefore f'(\frac{5}{2}) = f'(\frac{5}{2} - 4) = f'(-\frac{3}{2}) = f'(\frac{3}{2}) > 0$.

Then

$f(-\frac{3}{2}) < f''(0) < f'(\frac{5}{2})$.

Property (4): If $f(x)$ is a bounded function, its derivative $f'(x)$ is also a bounded function.

Proof: Discuss in two cases:

① The interval is finite (c, d)

$\exists x_0 \in (c, d)$, $\forall x \in (c, d), x \neq x_0$, by applying Lagrange's mean value theorem to the function $f(x)$ on the interval $[x_0, x]$ or $[x, x_0]$, we get

$f(x) - f(x_0) = f'(\xi)(x - x_0)$, $\xi \in (x, x_0)$ or $\xi \in (x_0, x)$

$\therefore f(x)$ is a bounded function, $\therefore \exists M > 0$, then, $\forall x \in (c, d), |f(x)| \leq M$.

\therefore

$|f'(\xi)(x - x_0)| - |f(x_0)| \leq |f(x_0) + f'(\xi)(x - x_0)| \leq M$,

arrange to get

$$|f'(\xi)| \leq \frac{1}{|x - x_0|} (M + |f(x_0)|)$$

$\therefore x, x_0 \in (c, d), x \neq x_0 \therefore |x - x_0|$ is a constant, $\therefore \frac{1}{|x - x_0|} (M + |f(x_0)|)$ is a constant too.

$\therefore f'(x)$ is also a bounded function on the interval (c, d) .

② The interval is infinite $(-\infty, +\infty)$.

Do the same thing as a finite interval,

$\exists x_0 \in (c, d)$, $\forall x \in (c, d), x \neq x_0$, by applying Lagrange's mean value theorem to the function $f(x)$ on the interval $[x_0, x]$ or $[x, x_0]$, we get

$f(x) - f(x_0) = f'(\xi)(x - x_0)$, $\xi \in (x, x_0)$ or $\xi \in (x_0, x)$

$\therefore f(x)$ is a bounded function, $\therefore \exists M > 0$, then, $\forall x \in (c, d), |f(x)| \leq M$.

\therefore

$|f'(\xi)(x - x_0)| - |f(x_0)| \leq |f(x_0) + f'(\xi)(x - x_0)| \leq M$,

arrange to get

$$|f'(\xi)| \leq \frac{1}{|x - x_0|} (M + |f(x_0)|),$$

both $f(x_0)$ and M are constant, $|x - x_0|$ is a constant or infinity. If $|x - x_0|$ is a constant, $\frac{1}{|x-x_0|}(M + |f(x_0)|)$ is a constant too, then $f(x)$ is also a bounded function on the interval $(-\infty, +\infty)$. If $|x - x_0|$ is a infinite, $\frac{1}{|x-x_0|}$ is infinitesimal, so $\frac{1}{|x-x_0|} \leq 1$, so $|f'(\xi)| \leq (M + |f(x_0)|)$, $\therefore f'(x)$ is bounded on the interval $(-\infty, +\infty)$.

Comprehensive ①, ②: Whether it's on a finite interval or an infinite interval, if $f(x)$ is bounded function, $f'(x)$ is bounded function too.

3. COMPARE THE PROPERTIES OF A FUNCTION WITH ITS ANTI-DERIVATIVE

Property(5): If $f(x)$ is an even function, $\int_0^x f(t)dt$ is an odd function, and $\int_a^x f(t)dt (a \neq 0)$ is uncertain.

Property (6): If $f(x)$ is an odd function, $\int_a^x f(t)dt (a \neq 0)$ are all even functions.

For properties(1),(2),(3), literature [3] has given proof, here is an example of application.

Example2. If the odd function $f(x)$ is continuous in the interval, then()

(A) $\int_0^x [\cos f(t) + f'(t)] dt$ is an odd function,

(B) $\int_0^x [\cos f(t) + f'(t)] dt$ is an even function,

(C) $\int_0^x [\cos f'(t) + f(t)] dt$ is an odd function,

(D) $\int_0^x [\cos f'(t) + f(t)] dt$ is an even function.

Solution: The correct answer is (A)

Because $f(x)$ is a strange function, by the property(2), $f'(x)$ must be an even function, $\cos x$ is an even function, so $\cos f(x)$ is also an even function, so $\cos f(x) + f'(x)$ is an even function, by property(5), one of its original function $\int_0^x [\cos f(t) + f'(t)] dt$ must be odd function. For options (C) and (D), $f'(x)$ is an even function, $\cos f'(x)$ is an even function, and $f(x)$ is an odd function, $\cos f'(x) + f(x)$ is non-odd and non-even, then the parity of one of its original functions, $\int_0^x [\cos f'(t) + f(t)] dt$, is uncertain.

Example3. If the function $f(x)$ is continuous, then () of the following functions must be even.

(A) $\int_0^x t[f(t) + f(-t)]dt$, (B) $\int_0^x t[f(t) - f(-t)]dt$, (C) $\int_0^x f(t^2)dt$, (D) $\int_0^x f^2(t) dt$.

Solution: The correct answer is (A).

Let's say that $F(t) = f(t) + f(-t)$, so $F(-t) = f(-t) + f[-(-t)] = f(t) + f(-t) = F(t)$, then $F(t) = f(t) + f(-t)$ is an even function. You can see that $t[f(t) + f(-t)]$ is an odd function. By property(6), all its original functions must be odd function. So one of its original function $\int_0^x t[f(t) + f(-t)]dt$ must be odd function. The integrand in choice (B) $t[f(t) - f(-t)]$ is neither odd nor even, so the parity of its anti-derivative is uncertain. For options (C) and (D), both $f(t^2)$ and $f^2(t)$ are even,

so one of their original functions $\int_0^x f(t^2)dt$ and $\int_0^x f^2(t) dt$ are odd function.

Literature [3] discusses that if the function is periodic with period, then any anti-derivative is not necessarily periodic. But, if the integral of a periodic function over a period is PI, then any of its anti-derivatives are periodic functions of period invariance. Then we get property (7).

Property (7): If $f(x)$ is a periodic function, then all anti-derivatives $\int_a^x f(t)dt$ are also periodic functions $\Leftrightarrow \int_0^T f(t)dt = 0$. (T is period of $f(x)$)

Proof: Given that $f(x)$ is a periodic function of period T($\because f(x + T) = f(x)$), its integral values are equal in any one week, then $\int_x^{x+T} f(t)dt = \int_0^T f(t)dt$. [1-2] From the conditions, we get

$$\therefore \int_x^{x+T} f(t)dt = \int_0^T f(t)dt = 0,$$

So

$$\int_a^{x+T} f(t)dt = \int_a^x f(t)dt + \int_x^{x+T} f(t)dt = \int_a^x f(t)dt + \int_0^T f(t)dt,$$

Then

$$\int_a^{x+T} f(t)dt = \int_a^x f(t)dt \Leftrightarrow \int_0^T f(t)dt = 0,$$

then all anti-derivatives are also periodic functions $\Leftrightarrow \int_0^T f(t)dt = 0$.

Example 4. If a differentiable function $f(x)$ is periodic, then the function which must be periodically invariant of the following functions is ().

(A) $\int_a^x f(t)dt$, (B) $\int_a^x f(t^2)dt$,

(C) $\int_a^x f'(t^2)dt$, (D) $\int_a^x f(t)f'(t)dt$.

Solution: The correct answer is (D)

Let's say $f(x)$ has period T. For choice (D) $\int_a^x f(t)f'(t)dt$, because $f(x)$ has period T, then $f'(x)$ has period T too, so $f(t)f'(t)$ has period T too, and

$$\int_0^T f(t)f'(t)dt = \int_0^T f(t)df(t) = \frac{1}{2}f^2(t)|_0^T = 0.$$

The choice (D) $\int_a^x f(t)f'(t)dt$ must has period T. (A) is any anti-derivative of $f(x)$. As discussed above, the anti-derivative of a periodic function is not necessarily a periodic function. In option (B), $f(x)$ and $f'(x)$ in option (C) are both periodic with T, but $f(t^2)$ and $f'(t^2)$ are compound functions, not necessarily periodic functions, so their original functions cannot be investigated for periodicity.

The property (4) discusses that if a function is bounded, then its derivative must also be bounded. But the converse is not true. Literature [3] has given the counter example, $f(x) = 8 + \sin x$ is bounded in interval $(-\infty, +\infty)$, but its original function $8x - \cos x$ is unbounded in the same interval. But, if you limit the interval to a finite interval, then the conclusion is true, and it gives you a property (8).

Property (8): If $f(x)$ is bounded within a finite interval (c, d) , then any of its original functions is

bounded.

Proof: $F(x) = \int_a^x f(t)dt$, $\forall x \in (c, d)$, $F'(x) = f(x)$. $\exists x_0 \in (c, d)$, by applying Lagrange's mean value theorem to the function $f(x)$ on the interval $[x_0, x]$ or $[x, x_0]$, arrange to get

$$F(x) - F(x_0) = \int_a^x f(t)dt - \int_a^{x_0} f(t)dt = f(\xi)(x - x_0), \xi \text{ is between } x \text{ and } x_0.$$

So $\int_a^x f(t)dt = \int_a^{x_0} f(t)dt + f(\xi)(x - x_0)$, because $f(x)$ is bounded, $\exists M > 0, \forall x \in (c, d), |f(x)| \leq M$, then

$$\begin{aligned} \left| \int_a^x f(t)dt \right| &= \left| \int_a^{x_0} f(t)dt + f(\xi)(x - x_0) \right| \\ &\leq \left| \int_a^{x_0} f(t)dt \right| + |f(\xi)(x - x_0)| \\ &= \left| \int_a^{x_0} f(t)dt \right| + |f(\xi)| \cdot |x - x_0| \leq \\ & \left| \int_a^{x_0} f(t)dt \right| + (d - c)M. \end{aligned}$$

And $\left| \int_a^{x_0} f(t)dt \right| + (d - c)M$ is a normal number, so any anti-derivative of $f(x)$ is bounded on the interval (c, d) .

Example 5. Let $f(x)$ is a continuous function, and $F(x)$ is any of its anti-derivatives, then ().

(A) When $f(x)$ is an odd function, then $F(x)$ must be even,

(B) When $f(x)$ is an even function, then $F(x)$ must odd even,

(C) When $f(x)$ is periodic, then $F(x)$ must be periodic,

(D) When $f(x)$ is a bounded function, then $F(x)$ must be bounded.

Solution: The correct answer is (A).

Property (6) shows that all anti-derivatives of an odd function are even, so (A) is correct. Property 5 tells us that even functions only have one anti-derivative that is odd, not all anti-derivatives are odd, so choice (B) is wrong. The anti-derivative of a periodic function is not necessarily a periodic function, so choice (C) is wrong.

Table 1 The nature of the comparison.

Property	$\int_0^x f(t)dt$ or $\int_a^x f(t)dt$	relationship	$f(x)$	relationship	$f'(x)$
parity	All are even	\Leftarrow	odd	\Rightarrow	even
	Only $\int_0^x f(t)dt$ is odd	\Leftarrow	even	\Rightarrow	odd
periodic	Periodic	\Leftarrow	Periodic	\Rightarrow	Periodic
		$\int_0^T f(t)dt=0$			
boundedness	bounded	\Leftarrow	bounded	\Rightarrow	bounded
		$in(c,d)$			

6. CONCLUSIONS

Through the study of this paper, it can be seen that, after the function has some properties, it can be deduced that its derivative function also has corresponding properties. By some property of the function, however, the property of its original function cannot be completely determined. What causes this?

A function is bounded, and its anti-derivative is not necessarily an anti-derivative.

4. OTHER SITUATIONS

The research premise of this paper is that both $f(x)$ and its original function $F(x)$ are elementary functions, and the corresponding properties are valid. Otherwise, the conclusion is not valid. Here's an example.

Example 5. Let's say that $F(x) = \begin{cases} x^3 \sin \frac{1}{x^3}, & x \neq 0 \\ 0, & x = 0 \end{cases}$,

then its derivative is $f(x)$, so

$$\text{When } x = 0, f(0) = F'(0) = \lim_{x \rightarrow 0} \frac{x^3 \sin \frac{1}{x^3}}{x} =$$

$$\lim_{x \rightarrow 0} x^2 \sin \frac{1}{x^3} = 0,$$

$$\text{When } x \neq 0, f(x) = F'(x) = 3x^2 \sin \frac{1}{x^3} + x^3 \cos \frac{1}{x^3} \left(-\frac{1}{x^4}\right) = 3x^2 \sin \frac{1}{x^3} - \frac{1}{x} \cos \frac{1}{x^3},$$

$$\text{Then } f(x) = \begin{cases} 3x^2 \sin \frac{1}{x^3} - \frac{1}{x} \cos \frac{1}{x^3}, & x \neq 0 \\ 0, & x = 0 \end{cases},$$

In any $[-a, a]$ interval, $f(x)$ is obviously unbounded, according to the definition of definite integral, so in the corresponding interval is ntegrable, then there is no objection to the upper integral function discussed in this paper, let alone its parity, periodicity and boundedness.

5. SUMMARIZE

The relation between the mono-tonicity of the function, the derivative, and the mono-tonicity of the original function is not discussed here, because the mono-tonicity of the function does not lead to the mono-tonicity of the derivative and the original function.[5] So we only discuss parity, periodicity and boundedness. Through discussion, the properties between functions, derivative functions and original functions can be summarized in Table 1, Comparison of properties of functions, derivative functions and original functions.

corresponding definite properties. Generally speaking, it is impossible to deduce that the original function has corresponding properties because the function is periodic or bounded. However, by adding certain conditions, the corresponding properties of the original function are obtained from the periodicity and boundedness of the function. Mastering these relationships is very helpful in solving these problems.

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E-commerce Product Sales Plan Based on LDA and ARIMA

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Abstract: Aiming at the correlation between e-commerce product reviews and ratings, this paper uses correlation analysis, cluster analysis, regression analysis, Gibbs Sampling, ADF inspection and other methods to establish an LDA model based on e-commerce product reviews and ratings. Besides, it set up the quantitative reviews and used the ARIMA model as qualitative indicator. It finally established a product review and rating as indicators to predict product sales trends to determine the model of its sales prospects by using Excel and Matlab to obtain the correlation coefficient matrix of the parameters and performing error and sensitivity analysis, clustering analysis of product evaluation on Amazon platform.

Keywords: LDA Model; ARIMA Model; ADF Test; Matlab; The Prediction of Product Sales Trend

1.INTRODUCTION

Amazon provides customers with the opportunity to comment and rate the purchased products in the online marketplace created by Amazon. Personal ratings are also called stars. Consumers can use one star (very dissatisfied) to five stars (very satisfied) to express their satisfaction with the product. Of course, customers can also submit text messages called reviews to publish their opinions about the product. This paper aims to find a comprehensive product evaluation model based on customer reviews and ratings, and to use it as a basis for merchants to plan merchandise sales strategies.

2.USE THE LDA TO QUANTIFY CUSTOMER REVIEWS

2.1 THE IDEAS OF RESEARCH

When a customer evaluates a product, even if there are multiple keywords that indicate evaluation attitudes in the review, only the characteristic expectations of the evaluation can uniquely determine that the evaluation tends to be positive, neutral or negative [1-10].

2.2 DATA ANALYSIS

All comments can be regarded as a collection of comments (segments) D , and all the different words involved in D form a large set vocabulary, abbreviated as VOC . Each comment d can be regarded as the corresponding sequence of words $\langle w_{11}, w_{12}, \dots, w_{1n}, \dots, w_{mn} \rangle$. Suppose there are M sentences in d , and each sentence has N word.

Therefore, w_{mn} means it is the n word in the m sentence.

For each comment d , the probability corresponding to a different *topic* is $\theta_d \langle p_{t1}, p_{t2}, \dots, p_{tk} \rangle$. p_{ti} is the probability of the d corresponding set T in *topic* i . T is divided into positive evaluation *topic*1, neutral evaluation *topic*2 and negative evaluation *topic*3. Use $p_{ti} = N_{ti}/N_d$ to calculate, where N_{ti} represents the total number of words of i corresponding *topic* to in a comment d , and N_d is the total number of d all words in the article.

For each *topic* in T , the probability of generating a different word is $\phi_t \langle p_{w1}, p_{w2}, \dots, p_{wk} \rangle$, where p_{wj} is the probability of t generating the j word in VOC . Use $p_{wj} = N_{wj}/N_t$ for calculation, where N_{wj} represents the total number of j words in VOC corresponding to *topic*, and N_t represents the total number of all words corresponding to the *topic*. The formula [2] of the LDA is expressed as formula (1) and formula (2):

$$p(w_{mn}) = \sum_{k=1}^K p(w_{mn} | s_{mn} = k) \times p(s_{mn} = k) \quad (1)$$

$$p(d) = \frac{\sum_{m=1}^M \sum_{n=1}^N p(w_{mn})}{MN} \quad (2)$$

The description of variables:

w_{mn} : the n th keyword in the m th sentence in a comment

s_{mn} : the part of speech corresponding to the n th keyword in the m th sentence can only take 1, 2, 3 as the feature quantity, indicating positive, neutral or negative evaluation in a certain comment

k : Nature of word only can be taken 1, 2, 3

$p(w_{mn})$: A characteristic part-of-speech (value) expectation of *key word*, among which *key word* is word with nature of words (commendation/derogation)

$p(d)$: The evaluation trend of a certain sentence, expressed by feature value

M : All sentences in a comment (total)

N : All words in a sentence (total number)

Formula (1) means that for a certain word w_{mn} , a feature value w_{mn} calculated by using nature of words s_{mn} as an intermediary (when $k = 1$, it is a commendatory word; when $k = 2$ it is mixed; when $k = 3$, it is a derogatory word), so that my team can uniquely determine that w_{mn} belongs to a topic

That is to say, when a customer evaluates a product, even if there are multiple keywords that indicate evaluation attitudes in the review, we can use formula (2) to obtain the characteristic expectations of the evaluation. Therefore, we can determine that the evaluation tends to be positive Evaluation, neutral evaluation or negative evaluation [3].

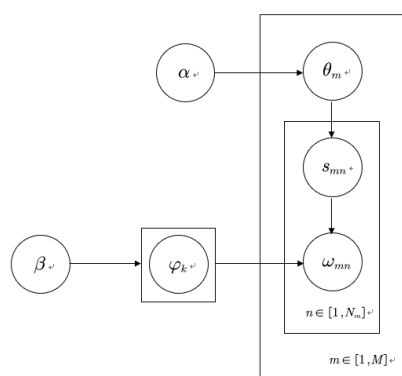


Figure 1. Algorithm Demonstration of LDA

In Figure 1, α and β are the Dirichlet Distribution Coefficient, which are set as $\alpha = 16.67, \beta = 0.01$ according to the common distribution parameter settings in the literature.

For topic $k \in (1, 2, \dots, K)$, there is $\varphi_k \sim Dir(\beta)$

For sentences $m \in (1, 2, \dots, M)$ containing keywords, there are $\theta_m \sim Dir(\alpha)$

3. CORRELATION ANALYSIS AND COMPREHENSIVE CONSIDERATION OF REVIEWS AND RATINGS

3.1 THE IDEAS OF RESEARCH

Studies have shown that the evaluations made by consumers in the feedback process are universally related to a certain evaluation trend determined by their hearts (good, moderate, and bad) [4]. The probability distribution is shown in Table 1:

Table 1. Evaluation Trend Distribution of Ordinary Users/Vine users/Discount users

$p(k, x, V_d)$	Good Review	Average Review	Negative Review
Five-star rating	85%/90%/75%	10%/10%/15%	5%/0%/10%
Four-star rating	70%/80%/65%	20%/20%/20%	10%/0%/15%
Samsung rating	30%/0%/20%	40%/100%/45%	30%/0%/35%
Two star rating	10%/0%/10%	20%/20%/20%	70%/80%/70%
One star rating	5%/0%/5%	10%/0%/10%	85%/100%/85%

3.2 DATA PROCESSING

For a collection of historical reviews of a certain product, Excel is used as a summary tool, classified and summarized according to ratings. It is classified and filtered according to words with review characteristics as keywords. Besides, repeated items are removed.

Using the method of Gibbs Sampling[5] to infer the model, and using Matlab software to perform regression analysis, it can be found that if the review is a positive review, its characteristic value $p(d)$ will be greater than 0.5, and generally above 0.7; if the review is a neutral review, Its feature value $p(d)$ will be close to 0.5; if the review is negative, its feature value $p(d)$ will be less than 0.5.

The correlation analysis of reviews and ratings on the evaluation records of the three e-commerce products on the Amazon platform shows that reviews and

ratings are related, so it is necessary to subtract the relevance, the product of review feature expectations and rating levels. It is used as a correction parameter to reduce the influence of common modulus on judging the evaluation trend.

According to K-means cluster analysis [6], the following determinants are finally obtained:

$$\gamma(d) = 50p(d) + 10\lambda(d) - \varepsilon(d) \cdot 2\lambda(d) \cdot p(d) \quad (3)$$

Variable Description:

$\gamma(d)$: Evaluation index, representing the actual rating of users

$p(d)$: The evaluation trend of a certain sentence, expressed by feature value

$\varepsilon(d)$: Relevance of a comment to its rating (%)

$\lambda(d)$: The characteristic level of the user's rating is related to the user's identity and its rating

In formula (3), the various coefficients are mainly to unify the unit, so as to facilitate the evaluation index. It can intuitively reflect the actual evaluation of a certain evaluation on the product in a hundred-point system.

Among them, the algorithm of feature level (rating) is:

$$\lambda(d) = \sum_{k=1,3,5} k \cdot p(k,x,V_d) \Big|_{X=x}^{D=d} \quad (4)$$

Variable Description:

$\lambda(d)$: The feature level of the user's rating is related to V_d and its rating

k : Corresponding nature of words, and only 1, 2, 3 can be taken x

V_d : Indicates whether the customer is a Vine member and whether they enjoy a discount. It is a status quantity

d : A certain comment, which can correspond to a certain comment and the position of the whole comment in which the comment is located

D : The collection of all comments, the total number of comments

X : Customer rating

$p(k,x,V_d)$: The probability that consumers make a certain evaluation corresponding to their inner true evaluation

The formula (4) represents a certain evaluation d with a star rating x . The feature value 1 is used to represent bad reviews, 3 represents mixed reviews, and 5 represents good reviews. The weight of different feature values depends on the V_d status and value x . The status of V_d includes vine members, customers who enjoy discounts and users who are neither vine nor discounted users. This order is also calculated from high to low priority.

4. EVALUATION AFFECTED BY TIME

4.1 THE IDEAS OF RESEARCH

The ARIMA model is a well-known time series forecasting method proposed in the early 1970s. The basic idea is to first transform a non-stationary time series into a stationary series. Then through the dependent variable of the lag term and random error term of the dependent variable can take regression prediction model. The ARIMA model is an improved ARMA, which can be applied to the sales time series data of a product with mixed trends. According to the time series, the sales change trend of the product is reflected, the data is processed steadily. ARIMA model is used to analyze and predict the sales volume of the product in the future market. The model is denoted as $ARIMA(p,d,q)$, where the difference order required to transform the original sequence into a stationary sequence is d . p is the autoregressive AR term

parameter, and q is the moving average MA parameter [7].

The basic flow chart of the ARIMA model for time series forecasting is shown in Figure 2:

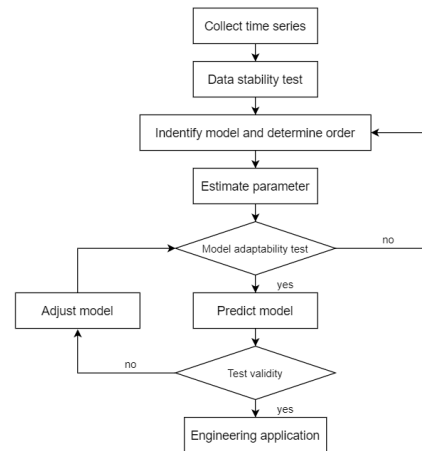


Figure 2 Algorithm Flow Chart of ARIMA

4.2 DATA PROCESSING

In the test and transformation of data stationarity, we need to determine the minimum difference order d in data stabilization. In the process of identifying and determining the model, this is the preliminary test of the stationary sequence after the difference processing process to test the model number of layers p, q . The ADF test method [8] is used to make further judgments on the stationarity of the time series. This method controls the high-order series correlation by adding the lag difference term u_i of the dependent variable to the right side of the regression equation. The ADF test formula is as follows:

$$\Delta\gamma_i = \gamma_i \gamma_{i-1} + a + \delta t + \sum_{i=1}^p \beta_i \Delta\gamma_{t-i} + u_t \quad (5)$$

Variable Description:

γ : Evaluation index

a : The constant term of the ADF test formula

δt : Linear time trend

t : Statistic value

For the evaluation data collection of the three sample products on the Amazon platform, using the ADF test method, it can be found that the sales volume has a more obvious upward trend over time, so these three samples are all stationary time series after being processed by the ARIMA model[9].

5. POTENTIAL SALES TRENDS OF PRODUCTS

5.1 THE IDEAS OF RESEARCH

According to formula (3), the evaluation index that characterizes the actual score of the user can be calculated. The expectation can be evaluated by the sixth-order polynomial power function through the Excel tool[10], and the change trend prediction curve can be analyzed. Calculate the data points according to

the quarter, and the corresponding Evaluation index expectation is:

$$\sum_{k=1}^K \gamma(d_k) \cdot \frac{1}{K} \quad (6)$$

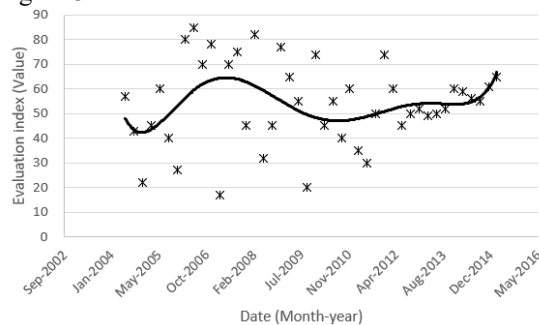
$\gamma(d_k)$: Evaluation index of the kth month, k is 1, 2, 3

K : Constant, corresponding to three months of a quarter

5.2 DATA PROCESSING

The scatter point change trend prediction curve calculated by Excel can reflect the overall change trend of the scatter point data value. Figure 3 is the scatter plot of the evaluation index's expected change over time, and the solid line is the change trend prediction curve calculated by Excel. (Take a product as an example)

Figure 3 Potential Sales Trend of Products



Taking the evaluation set of the product from June 2004 to March 2015 as a data sample, it is obvious from Figure 3 that the reputation of the product is optimistic, and the evaluation index will develop to 68 points or more (a positive evaluation). The sales trend of this product is improving.

The statistical data found that the number of keywords in the positive reviews and negative reviews in the middle evaluation (3-star evaluation) is basically the same. Therefore, for neutral evaluation, evaluation index is simplified to:

$$\gamma(d) = 50p(d) + 10\lambda(d) \quad (7)$$

Variable Description:

$\gamma(d)$: Evaluation index

$p(d)$: Evaluation trend of a certain sentence

$\lambda(d)$: User rating feature level

In fact, people will always give priority to products with high praise rate (expressed by Evaluation index), which makes it easier to buy them. Through formula (7), the historical evaluation set of any product can be statistically analyzed, so as to determine the future of the product. Predict the development of word-of-mouth, and use this as a basis for businesses to make future sales plans.

6. CONCLUSION

Based on the customer evaluation of e-commerce platforms, this paper uses text comments and rating

levels as parameters, and uses the LDA model and the ARIMA model to construct a comprehensive evaluation statistical program. After inspection, we found that the number of reviews and sales are stationary time series, and statistical data found that reviews and ratings are correlated. Therefore, our model can predict the word-of-mouth trend of products in the future. It can help merchants to formulate or improve sales solutions.

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Habitat Quality Model Based on Global Ocean Temperature Effects on Marine Life

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Abstract: Global warming, which is caused and worsened by the emission of greenhouse gases, has a negative impact on many fields of our environment, one of which is the rising ocean temperature. The change of the ocean temperature leads to the change of habitats of certain marine lives. As a result, Scotland's fishing industry will also be affected, with their fisheries changing as those fish migrate. This paper establishes a model to determine the most likely locations of these two species of fish in the next 50 years, and gives a prediction analysis.

Keywords: Global ocean temperature; Mathematical model; Marine Life

1. INTRODUCTION

1.1 Background

Global warming, which is caused and worsened by the emission of greenhouse gases, has a negative impact on many fields of our environment, one of which is the rising ocean temperature. The change of the ocean temperature leads to the change of habitats of certain marine lives. Mackerel and herring, for example, which live near Scotland, tend to migrate northwards when the ocean temperature rises. As a result, Scotland's fishing industry will also be affected, with their fisheries changing as those fish migrate, so Scotland's small fishing companies ought to respond to this.

1.2 Restatement Of The Problem

To help small Scottish fishing companies solve this problem, we need to build a model to predict the temperature changes over the next 50 years, thus predicting the migratory direction of mackerel and herring. And we hope to show the best and worst possible situation and elapsed time to those small Scottish fisheries companies by predicting the rate of change in ocean temperature and the migration directions of both species. In addition, we will use our results to provide some strategies for the development of those small fishing companies in Scotland. Based on these, we will also take the issue of vessels entering other countries' territorial seas into consideration. What we shall do to cope with the problems above are listed as follows.

First, based on the historical sea surface temperature data provided by the British Meteorological Agency, we selected the data of several representative areas on the sea surface, and used the regression function in the MATLAB statistical toolbox to establish a linear

regression model to obtain the relevant parameters: regression coefficient b , the area of the regression coefficient Inter-estimation $bint$, residual r , confidence interval $rint$ and statistics stats used to test the regression model. Then we used regression coefficient b and confidence interval $rint$ to draw residual graphs and perform residual analysis. If there is any abnormal data, we would remove it and use the regression function to re-establish linear regression model. There are four values in the above stats: the determination coefficient R^2 , the statistical observation F , the p value of the test and the estimate of the error variance. These four values are used for model evaluation.

After obtaining the regression models of several areas, we will use it to predict the temperature changes in these areas over the next 50 years and predict the sea surface temperature isotherm map of 2070. Then, we will compare the map of 2070 with the one of 2020. Combined with the active areas of herring and mackerel in 2020 and the water temperatures suitable for these two fishes, we are able to predict the migration of the fishes.

2. MODELS

2.1 Model Description

Based on the analysis of sea surface temperature data at selected points in the waters near Scotland, a linear regression model was established with independent variable X as time and dependent variable Y as temperature at a certain point of the waters near Scotland.

$$Y_i = C_0 + C_1 X (i = 1, 2, 3)$$

C_0 , C_1 are the regression coefficients of the equation. We established a multiple linear regression equation by using MATLAB:

`[b, bint, r, rint, stats]=regress(Y,X,alpha),`

In this equation, b stands for the regression coefficient, $bint$ the confidence interval of the regression coefficient, r the residual error and α the significance level, and $stats$ contains four statistics: correlation coefficient R^2 , F value, probability P corresponding to F , and estimated error variance S^2 .

We use these four values contained in $stats$ as the criterion of the quality of the model: F is used to test whether the model is valid; the correlation coefficient R is used to determine how well the model fits. The closer R^2 is to 1, that is, the better the model fits, otherwise the closer R^2 is to 0, the worse the model fits; the p value of the test needs to be lower than the significance level α and. The closer the p value is

to 0, the better the model fits; the smaller the error variance, the better the model fits.

2.2 The Change of Temperature

We selected the average temperature data of three places on the sea near Scotland in July for each year [1] for the model fitting (-0.5°E, 55.5°N),(2.5°E, 64.5°N),(1.5°E,59.5°N).

First of all, we conducted the model fitting on the average temperature of (-0.5°E,55.5°N) every year in July. And in accordance with the official data provided by the British Met Office [1], we obtained the following results. Measured $F = 31.98$, the probability corresponding to $F = 0.000001336992961$, since $P < 0.001$, the model is established.

Table 1

Correlation coefficient R2	0.438213637624358
F value	31.981479697411881
Probability P	0.000001336992961
corresponding to F	
Estimated error variance S^2	0.420163939860480

It is measured that $F = 31.98$ and the probability corresponding to $F = 0.000001336992961$.

Since $P < 0.001$, the model could be established. $R^2 = 0.438213637624358$, with the value closer to the real value, we could indicate that the regression equation was a bit more significant than expected.

In addition, the estimated error variance $S^2 = 0.420163939860480$, the variance was rather small, which also indicated that the regression equation was right and significant.

The resulting regression equation:

$$Y_1 = -75.791905768651930 + 0.045046813651466X$$

Then we did the same model fitting on (2.5°E,64.5°N).

Table 2

Correlation coefficient R2	0.374441965049326
F value	24.541480900702798
Probability P	0.000013006286044
corresponding to F	
Estimated error variance S^2	0.471457153170143

It is measured that $F = 24.54$ and the probability corresponding to $P = 0.0000013006286044$. Since $P < 0.001$, the model could be established.

$R^2 = 0.374441965049326$, with the value closer to the real value, we could indicate that the regression equation was a bit more significant than expected.

In addition, the estimated error variance $S^2 = 0.471457153170143$, the variance was rather small, which also indicated that the regression equation was right and significant.

The resulting regression equation:

$$Y_2 = -71.916520688615904 + 0.041800060404713X$$

At last, we conducted the model fitting on (1.5°E,59.5°N) with the same measure.

Table 3

Correlation coefficient R2	0.342864140532294
F value	21.391968737197708
Probability P	0.000037122113312
corresponding to F	
Estimated error variance S^2	0.489769357131807

It is measured that $F = 21.98$, and the probability corresponding to $P = 0.0000037122113312$. Since $P < 0.001$, the model could be established.

$R^2 = 0.342864140532294$, with the value closer to the real value, we could indicate that the regression equation was a bit more significant than expected.

In addition, the estimated error variance $S^2 = 0.489769357131807$, the variance was rather small, which also indicated that the regression equation was right and significant.

The resulting regression equation :

$$Y_2 = -66.238568408337770 + 0.039776502567201X$$

Moreover, we imaged the sea surface temperature data from the three places from 1975 to 2020, and obtained:

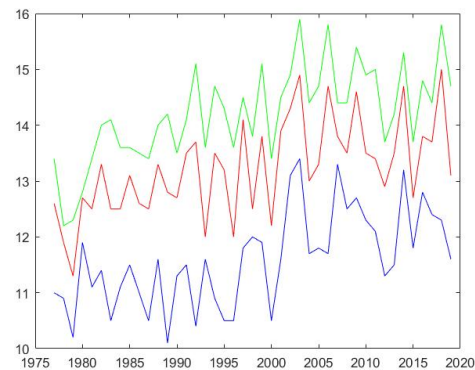


Figure 1

After using the smooth function of Matlab, the result is shown as follows.

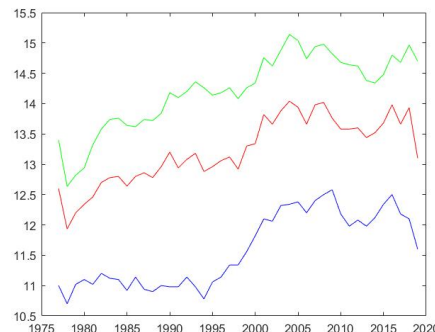


Figure 2

The image shows that the trend of the temperature change in the sea area near Scotland as a whole increase every year, which is consistent with the regression model obtained by fitting the temperature

data, which further validates the regression model. From the regression equation we could come to a prediction that the sea surface temperature at 2070 in (-0.5 ° E, 55.5 ° N) will increase by 2.75050 ° C compared to 2020.

We obtained that the sea surface of (2.5 ° E, 64.5 ° N) in 2070 would increase by 3.0096 ° C compared to 2020. We could see that the sea surface temperature of (1.5 ° E, 59.5 ° N) in 2070 will increase by 2.9988 ° C compared to 2020.

Finally, the average value of the three sets of data was 2.9211 ° C.

In order to further reflect the overall temperature change of the sea level, we have quoted the schematic diagram of sea surface temperature over the years from the British Meteorological Agency to observe the temperature in the sea area around Scotland in July 1979, July 1999, July 2019, and the used the regression equation to predict the isotherm of the waters around Scotland in 2070.

Again, we used the data of the sea level temperature in July from Scotland provided by the British Meteorological Agency and the contour function in Matlab to obtain the isotherm in 2070.

2.3 THE MAIN HABITATS OF HERRING AND MACKEREL

First, we consider the main habitats the areas where lives a great number of these two fishes.

We found the habitats of mackerel and herring through the official website of the Food and Agriculture Department of the United Nations Food and Agriculture Organization[2].

This picture shows the habitats of herring in the waters around Britain

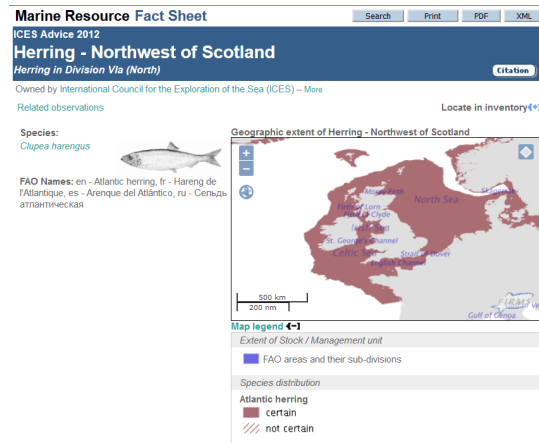


Figure 3 The main habitat of mackerel around British. It can be seen from the image that the habitats of the two fishes basically coincide. In addition, we learned from Wikipedia that herring and mackerel have very similar living habits, so as to further reasonably simplify the model, we consider the two fish the same type.

It could be assumed that the migration of herring and mackerel is related only to temperature and the sources

of their food. We first thought about the food sources of herring and mackerel. Herring and mackerel are more inclined to live on the continental shelf near land, because there are richer food, sunlight and dissolved oxygen[2]. Therefore, schools of fish will be more inclined to migrate towards the continental shelf. We considered the continental shelf and the habitat of the two schools of fish to be more densely populated. In addition, we found the distribution of the continental shelf near the United Kingdom through Wikipedia. In addition, we paid high attention to the influence of temperature on the habitats of the two fish species. Through the official website of the Department of Fisheries and Aquaculture of the Food and Agriculture Organization of the United Nations[3], we found that the optimal water temperature for the two fish to live is from 11°C to 15°C.

We then quoted the temperature distribution map of sea level in mid-July 2019 provided by the British Meteorological Agency (Figure 8) and used the isotherm to determine that the sea surface temperature range from 11°C to 15°C.

In summary, we could predict that denser schools of fish will be distributed in the habitats of these two fishes, the continental shelf, and the coincident junction of seas near Scotland with a temperature from 11°C to 15°C of the sea level.

Based on these, we made the map of the main habitat of herring and mackerel around Scotland in mid-July of 2019.

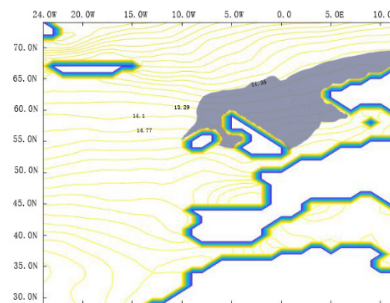


Figure4: The main habitat in 2019. The dash area is the main habitat.

2.4 RESULT

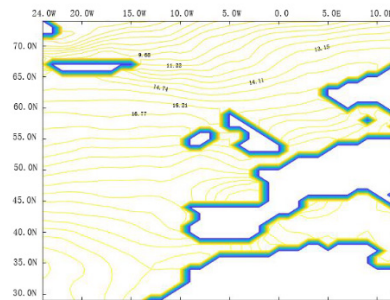


Figure 5 In conclusion, judging from the main habitat of herring

and mackerel, the position of the continental shelf and the coincident junction of seas near Scotland with a temperature from 11°C to 15°C of the sea level in 2070, we could predict the main habitat of these two fishes in 2070. Through the comparison of the main habitat now and 50 years later, we could foresee how the herring and mackerel will migrate.

Taking into consideration the position of the continental shelf and the main habitat of the two fishes now, we made a prediction of the main habitat of these two species of fish in 2070.

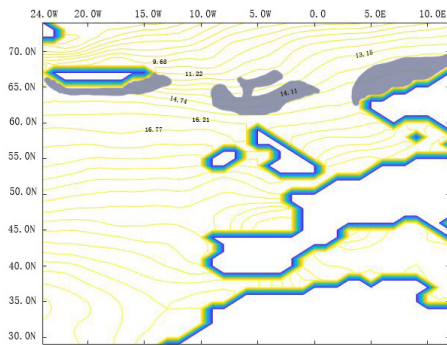


Figure 3 The main habitat in 2070

The dash area is the place where the herring and mackerel would most probably inhabit.

3. ARTICLE TO HOOK LINE AND SINKER MAGAZINE

Global warming, which is caused and worsened by the emission of greenhouse gases, has a negative impact on many fields of our environment, one of which is the rising ocean temperature. The change of the ocean temperature leads to the change of habitats of certain marine lives [4].

We predicted the sea surface temperatures and made the conclusion: In the worst case, the habitat of mackerel and herring will be out of the offshore fishing range. This situation will also happen in 2080 at the

very least, which will affect those fishermen who make a living on this type of fishing to a great extent. As to this situation, we have a couple of suggestions to guarantee their profits.

The suggestions are listed as follows:

Using some proportion of small fishing vessels with refrigeration equipment to ensure the freshness and high quality of the catch during the transportation.

Increasing the number of fishing vessels as well as guaranteeing the cost at the same time.

As is mentioned above, the emission of greenhouse gases impacts every aspect of human life. When we try to solve the problems it brings, we should also pay attention to protect the environment and slow down the process of global warming, which is everyone's responsibility.

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Optimal Analysis of the Best Coordination Strategy of “Concentric Drum” Based on Theoretical Mechanics

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Abstract: Aiming at the quality development project "Concentric Drums", which exercises teamwork ability, this article uses nonlinear programming methods and genetic algorithms, and uses MATLAB software to solve the problem. Under ideal conditions, participants coordinate and cooperate to optimize the number of consecutive ball throws. The problem.

Keywords: Drum and Ball; Multi-Objective Optimization; Nonlinear Programming; Genetic Algorithm; Theoretical Mechanics

1. INTRODUCTION

"Concentric drum" is a quality development project that exercises teamwork ability. The prop of the project is a cowhide double-sided drum, with multiple ropes fixed in the middle of the drum body, and the fixing points are evenly distributed along the circumference of the drum body, and the length of each rope is the same. Each team member pulls a rope to keep the drum head level (as shown in Figure 1). At the beginning of the event, the ball fell vertically from the center of the drumhead without initial speed, and the players lifted the ball up together and made the ball beat rhythmically on the drumhead. In the process of throwing the ball, the team members can only hold the end of the rope, and cannot touch the drum or other parts of the rope.



Figure 1 Schematic diagram of the "Concentric Drum" team game activity

This article discusses that the mass of volleyball used in the "Concentric Drum" project is 270 g. The upper surface diameter of the cowhide double-sided drum is 40 cm, the height of the drum is 22 cm, and the mass

of the drum is 3.6 kg. The number of players must be at least 8, and the minimum straight-line distance between team members must be greater than 60 cm. At the beginning of the project, the ball dropped vertically from 40 cm above the center of the drumhead. The height of the upside-down volleyball should be more than 40 cm away from the drum head. If it is less than 40 cm, the project ends. The ultimate goal of the project is to maximize the number of consecutive ball bumps.

As the "Concentric Drum" project of the mathematical modeling competition, there are currently many domestic scholars doing follow-up research, and the research methods are diversified. Yue HU et al. [1] studied the multi-factor analysis of the "Working Together" project, and Qiyun KE et al. [2] studied the tilt of the drum and the correction strategy based on the vector analysis method. Li'an QIAO et al. [3] used rigid body dynamics to study the concentric drum strategy. Wenxuan XU et al. [4] used the method of solving the second-order differential equations to analyze how to make more bumps and adjust in real time. Wenqi DU et al. [5] studied the "concentric drum" collaboration strategy based on dynamic analysis. Baoming SHI et al. [6] studied the influence of participants on the change of drum head angle and drum elasticity when the direction of force, timing of force, and magnitude of force change, so as to give the team's best collaboration strategy. Xin WANG et al. [7] combined the laws of imperfect elastic collision and conservation of momentum to establish a physical model of drum ball movement and obtained the best personnel arrangement strategy. This article attempts to optimize and analyze the optimal coordination strategy of "concentric drum" from the perspective of theoretical mechanics, combined with the constraints of nonlinear programming.

2. DATA SOURCES AND ASSUMPTIONS

The data comes from the 2019 National College Students Mathematical Modeling Competition A [8-15]. In order to solve the problem, the following hypotheses are proposed: (1) The air resistance is small and negligible; (2) The pull rope is not stretchable and inelastic, and the tension on the rope is everywhere. Equal; (3) The collision time between the

ball and the drum is extremely short, that is, the moment of collision is regarded as the conservation of momentum; (4) Everyone can precisely control the direction of force, intensity and timing of force, and the angle between the direction of force and the horizontal plane remains unchanged.

3. THE BEST COLLABORATION STRATEGY FOR THE TEAM IN AN IDEAL STATE

3.1 THE MOVEMENT PROCESS OF THE BALL AND DRUM

Regardless of air resistance, the movement of the drum and the ball is regarded as a uniformly variable movement, and the movement of the drum and volleyball can be divided into four parts, as shown in Figure 2. It is assumed that the horizontal plane of the first collision between the ball and the drum is the zero potential energy surface. (X_1 is the height of the highest point the volleyball can reach from the zero potential energy surface after the volleyball collides with the drum, and t is the period of time that the volleyball continues to move after the collision).

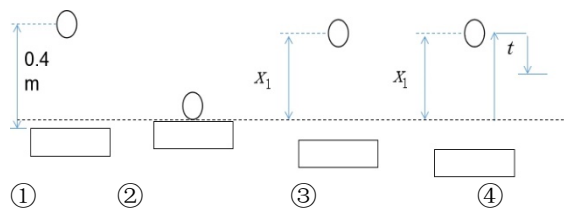


Figure 2 The movement process of the ball and drum

- ① In the initial state, the volleyball is 0.4m above the center of the drum surface, and the drum is in a balanced state of force and remains relatively static;
- ①→② The volleyball is 0.4m above the center of the drum head in a free fall motion without resistance. At the same time, people tighten the drum rope. Since the vertical component of the pulling force is greater than gravity, the drum will move up a small distance;
- ②→③ After the two collisions, the volleyball rises X_1 to reach the highest point, and the drum continues to move down;
- ③→④ The volleyball falls from X_1 . After the collision occurs, the drum moves down by X_2 and reaches the lowest point. After time ΔT , the volleyball collides with the drum head again, as shown in Figure 3. And the collision position coincides with the first collision position.

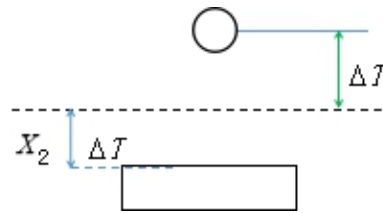
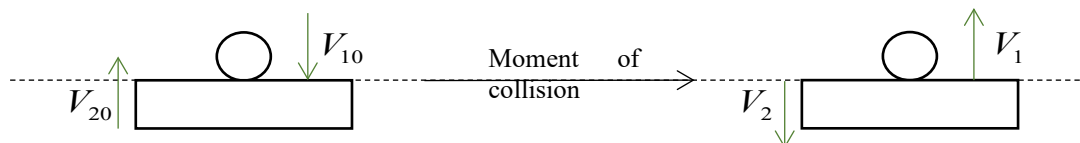


Figure 3 The second collision between two objects after passing

In the set ideal state, the energy lost by the ball, drum, and rope system can be provided by humans, so only the energy loss during the collision phase is considered, and the gravitational potential energy does not change, so the position of each collision is at zero potential energy Noodles.

3.2 CONSTRAINTS OF NONLINEAR PROGRAMMING

When the drum reaches its lowest point, we perform a force analysis on it, as shown in Figure 4. The longest dashed line is the zero potential energy surface. (m_1 the mass of the volleyball is 270 g; m_2 the mass of the cowhide double-sided drum is 3.6 kg; g acceleration of gravity; the pulling force of a person pulling the rope, F is the rope tension; θ the angle between the pulling force F and the horizontal plane).

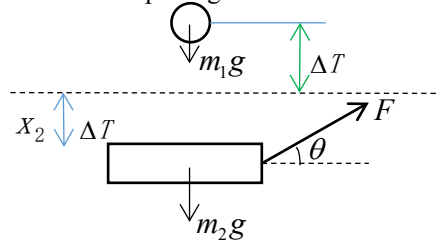


Figure 4 Schematic diagram of the force when the drum reaches its lowest point.

Available from kinematics knowledge

$$X_2 = \frac{1}{2} \left(\frac{nF \sin \theta}{m_2} - g \right) \Delta T^2 \tag{1}$$

In the process of ③→④, from the symmetry of the free fall, X_1 can be obtained.

$$X_1 = \frac{1}{2} g \left(\frac{t + \Delta T}{2} \right)^2 \tag{2}$$

The following is an analysis of the moments before and after the collision, as shown in Figure 5: (V_{10} the speed of the volleyball immediately before the collision; V_{20} the speed of the drum immediately before the collision; V_1 the speed of the volleyball immediately after the collision; V_2 the speed of the drum immediately after the collision)

Figure 5 Schematic diagram of ball and drum speed before and after collision

According to the literature data consulted, the ball in the "concentric drum" is a hard volleyball, and the deformation of the volleyball during collision can be ignored, so

$$V_1 = V_{10} \tag{3}$$

From (1) and (2), we can get

$$V_{20} = \left(\frac{nF \sin \theta}{m_2} - g \right) \Delta T \tag{4}$$

$$V_{10} = g \left(\frac{t + \Delta T}{2} \right) \tag{5}$$

Because the collision time between the volleyball and the drum is extremely short, the impulse of the external force on the system is very small and can be ignored. Therefore, the momentum of the collision is conserved at the moment of the collision.

$$m_2 V_{20} - m_1 V_{10} = m_1 V_1 - m_2 V_2 \tag{6}$$

Synthesize (3)-(6) can be solved V_2 .

When the volleyball collides with the drum, the speed direction is opposite to the direction before the collision, and the drum will move downward, so the speed must be greater than zero, that is.

$$V_2 > 0$$

According to the requirements of the project, the height of the upside-down ball should be more than 40 cm away from the drum surface. If it is less than 40 cm, the project will stop.

$$X_1 + X_2 \geq 0.4$$

And V_2 is a critical value. When the drum speed exceeds this critical value immediately after the drum collides with the volleyball, the drum will not continue to rise, but will move downward. Thus have.

$$\sqrt{2 \left(\frac{nF \sin \theta}{m_2} - g \right) X_2} \geq V_2$$

The minimum distance between the players shall not be less than 60 cm, based on the schematic diagram of position analysis (Figure 6, Figure 7).

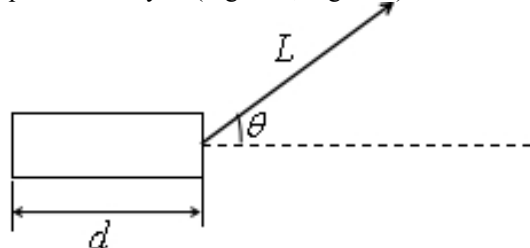


Figure 6 Side view of man-drum-man position

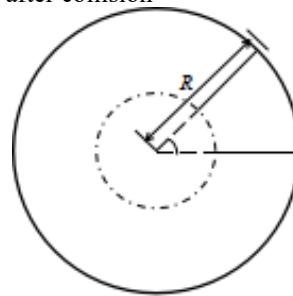


Figure 7 Top view of person-drum-person position Inferred

$$\begin{cases} R = \frac{d}{2} + L \cos \theta \\ \sqrt{2R^2 \left(1 - \cos \frac{2\pi}{n} \right)} \geq 0.6 \end{cases}$$

After consulting the data, the number of pull rings on the cowhide double-sided drum with a diameter of 40cm is even, and the minimum is 8 rings and the maximum is 16 rings. Therefore, the number of players is an even number not less than 8 and not more than 16.

In summary, the four constraints of nonlinear programming are: (d the diameter of the drum; L rope length; R the distance from the person to the center of the drum head; I_0 moment of inertia; h drum height)

$$\begin{cases} V_2 \geq 0 \\ X_1 + X_2 \geq 0.4 \\ \sqrt{2 \left(\frac{nF \sin \theta}{m_2} - g \right) X_2} \geq V_2 \\ \sqrt{2 \left(\frac{d}{2} + L \cos \theta \right)^2 \left(1 - \cos \frac{2\pi}{n} \right)} \geq 0.6 \end{cases}$$

3.3 THE BEST COLLABORATION STRATEGY

It can be seen from the analysis that the target quantity obtained in the nonlinear programming model is t , $t + \Delta T$, $F \cdot \sin \theta$. Among them, in order to make the ball throw as many times as possible, When the value of t reaches the minimum, $F \cdot \sin \theta$ Reach the best, That is, under this condition, the vertical component of human pulling force reaches the minimum. Human force F and the angle θ between the force direction and the horizontal plane when $F \cdot \sin \theta$ is optimal, There is a functional relationship: $F \cdot \sin \theta = C$

Based on this model and optimization goal, we choose to use genetic algorithm [9,10] to solve the problem, the specific steps are as follows:

Step1: Determine the main optimization variable as $t + \Delta T$, generate an initial population, and generate new values for the constraint condition judgment;

Step2: Calculate whether each value in the species group satisfies the constraint conditions, if not, go to Step3, otherwise go to Step5;
 Step3: Select two individuals to cross, select the next generation of individuals according to the four constraints, and calculate the constraints again;
 Step4: Repeat Step2~Step3, calculate individual fitness and probability of being selected, and obtain the remaining individuals;
 Step5: Select an individual that may have mutations, perform mutation operations, and generate new individuals;
 Step6: Output the optimal value of fitness in the population as the optimal solution, and calculate the optimized variable.

According to the above algorithm steps, the MATLAB program [11] is written to solve, and when the number of people is 8, the minimum time is 0.4828s.

At this time, the optimal value of $F \cdot \sin \theta$ is 5.097N, and the functional relationship between the human force F and the force direction and the horizontal plane is obtained as

$$F = \frac{5.097}{\sin \theta}$$

The strength F that satisfies the above functional relationship and the angle θ between the direction of force and the horizontal plane are both optimal solutions.

Therefore, the best cooperation strategy is as follows: the number of players is 8, the time to exert force is 0.4828s, and the vertical component of the pulling force is 5.097N. At this time, the ascent height of the ball is 0.6985m.

3.4 ERROR CORRECTION PLAN

In reality, there is a certain error in the timing and strength of the players' force, so the drum head may be tilted.

Assuming that the angle between the direction of force and the inclined drum surface is θ' , then

$$\Delta\theta = \theta' - \theta,$$

And

$$F \cdot \sin \theta' = C'$$

according to

$$I = I_{11}\alpha^2 + I_{22}\beta^2 + I_{33}\gamma^2 - 2I_{12}\alpha\beta - 2I_{13}\alpha\gamma - 2I_{23}\beta\gamma$$

And

$$R\left(\theta, \frac{\vec{\omega}}{|\vec{\omega}|}\right) = E + (\sin \theta)K + (1 - \cos \theta)K^2$$

among
$$K = \frac{1}{|\vec{\omega}|} \begin{bmatrix} 0 & -\omega_z & \omega_y \\ \omega_z & 0 & -\omega_x \\ -\omega_y & \omega_x & 0 \end{bmatrix}.$$

The analysis shows that the force needs to be exerted in advance, and the direction of force must be adjusted in time according to the tilt angle, and the strength must be increased on the original basis.

4. CONCLUSION

First, using theoretical mechanics, the dynamics of the drum and the ball in a completely inelastic collision are analyzed, momentum conservation and dynamic equations are listed, combined with the constraints of nonlinear programming, and the drum motion model is established. Using genetic algorithm, the best strategy is a team of 8 people, the vertical component of the pulling force of each person is 5.097N, the time of force is 0.4828s, and the ascent height of the ball is 0.6985m. Then, analyze the impact of the change of the inclination angle of the drumhead caused by Improper operation on the project. According to the law of rigid body rotation, the equations are solved, and the best strategy needs to be exerted in advance, and the direction of the force needs to be adjusted according to the inclination angle, and the strength is also To increase on the original basis.

ACKNOWLEDGMENT

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Quantitative Analysis of Important Parameters of Securities Based on Neural Network Algorithm

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Abstract: For the measurement analysis of important parameters of securities, neural network algorithms are used to train historical data to obtain the first-period forecasts of stock opening prices, trading volume and other data; according to historical data, the stock equation is fitted, and MATLAB software is used for programming to determine the stock Long-term holding value, using the retracement function to calculate the maximum loss rate of the next day as the risk of stocks, formulating investment strategies for long-term holding or short-term operation; using self-organizing competitive neural network and cluster analysis to classify stocks for subsequent securities portfolios Investment provides reference opinions.

Keywords: Neural network algorithm; self-organizing neural network; cluster analysis; ARBR sentiment index; MATLAB software

1. INTRODUCTION

Securities investment is a complex and risky financial activity. The global integration of the international securities market has increased the risk and complexity of the current securities market [1]. Both institutional investors and retail investors always hope to realize returns Therefore, studying the important parameters of securities and making reasonable predictions has important theoretical significance and research value for selecting high-quality stocks based on indicators and formulating investment strategies.

This article combines relevant securities investment knowledge and historical data to analyze the opening price, highest price, lowest price, closing price, and trading volume of stocks, using a combination of qualitative and quantitative, summary and analysis methods [2], based on neural network algorithms Predict stocks for one period; construct stock evaluation indicators to select high-quality stocks with small stock price fluctuations, stable trading volume, and high compound growth rate, and formulate investment strategies for long-term holding or short-term operation; adopt self-organized competition based on key stock indicators Network and cluster analysis are used to classify stocks, which is suitable

for classifying multiple stocks, choosing the best stocks and making portfolio investment. This model has the advantages of flexibility and operability [3]. The research results are of great significance to securities investment.

2. DATA SOURCES AND ASSUMPTIONS

The data comes from Problem B of the 2020 Third China Youth Cup National College Students Mathematical Modeling Contest. In order to solve the problem, the following hypotheses are proposed: (1) Market behavior covers all information; (2) Securities prices move along the trend; (3)History will repeat itself [4]; (4)Ignore the impact of natural disasters such as the epidemic, earthquake, tsunami, etc. on stock prices; (5)Ignore the impact of human factors on stock prices; (6)There are ten stocks with stock codes abc001, abc002...abc010 from January 29, 2019 Data on opening, highest, lowest, closing, and trading volume as of March 26, 2020; (7)All data are true and reliable and meet the securities trading rules.

3. COMPENSATION OF MISSING DATA BASED ON NEURAL NETWORK ALGORITHM

3.1 RESEARCH GOALS

Complete the opening, highest, lowest, closing, and trading volume data of the first 8 stocks on March 26, 2020

3.2 RESEARCH IDEAS

First, use a genetic algorithm with good nonlinear optimization capabilities to optimize the setting of the initial weight threshold of the neural network, and then construct a stock index prediction model based on historical stock price and volume information as input variables, and opening price and trading volume as output variables [5]. Take the opening price of the stock with the stock code abc001 as an example, add the next day's opening column, the goal is to find the next day's opening price of abc001 on March 25 (that is, the opening price of abc001 on March 26), and the rest of the data is completed The idea is the same.

3.3 RESEARCH METHODS

Step1: Read in the data, assign variable names to the imported array; Step2: divide the data into training set, test set, and verification set; Step3: normalize data

input and output; Step4: build a network, set training parameters, and start training, Store the trained neural network; Step5: Normalize the test data, and reverse the normalization of the test results; Step6: Draw a comparison chart between actual data and predicted data, and calculate the error.

3.4 RESULT ANALYSIS

According to the above research method, the solution is solved with the help of MATLAB software. (1) Read

in the data, and convert the steps in the research method into a language that the MATLAB software can run. (2) Run the program and sort out the running results. Obtain the opening, highest, lowest, closing, and trading volume data of the eight stocks before March 26. The defect data of the first eight stocks are shown in Table 1, and the comparison chart between the actual closing price of abc001 and the predicted closing price is shown in Figure 1.

Table 1 Missing data for the top eight stocks

Stock code	date	Open	high	low	close	volume
abc001	March 26, 2020	12.87	13.07	12.7	12.86	127727795
abc002	March 26, 2020	49.37	50.16	48.86	49.43	41444435
abc003	March 26, 2020	3.27	3.29	3.22	3.27	101899785
abc004	March 26, 2020	79.5	79.86	78.24	78.67	5170516
abc005	March 26, 2020	6.12	6.17	6.02	6.07	16096697
abc006	March 26, 2020	53	53.75	52.68	53.48	61954034
abc007	March 26, 2020	491.49	504.68	486.39	504.43	2675036
abc008	March 26, 2020	36.71	37	35.42	36.02	21143426

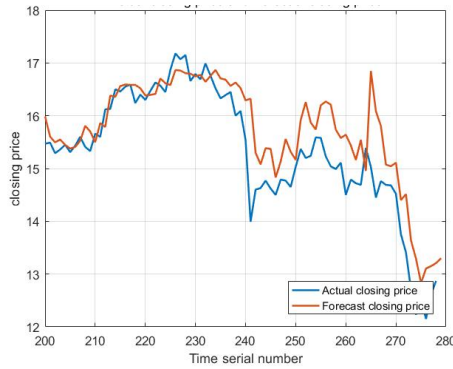


Figure 1 abc001 actual closing price and predicted closing price

*As can be seen from the above figure, the actual closing price is relatively close to the predicted closing price, that is, the missing data supplemented by the neural network algorithm is reasonable and credible

4. BUILD STOCK EVALUATION INDICATORS

4.1 RESEARCH GOALS

Construct stock evaluation indicators to select high-quality stocks with small stock price fluctuations, stable trading volume, and high yields; to obtain

investment strategies for long-term stock holdings or short-term operations.

4.2 RESEARCH IDEAS

Construct five evaluation indicators of stock price volatility, trading volume stability, compound growth rate, long-term holding value, and risk, and formulate securities investment strategies based on the indicators.

4.3 RESEARCH METHODS

Step1: Define the range of stock price fluctuations, the stability of trading volume, and the compound growth rate.

(1) Stock price fluctuation range: $\frac{1}{280} \sum_{i=1}^{280} \frac{high-low}{low}$, represents the securities trading days arranged in chronological order from January 29, 2019 to March 26, 2020;

(2) Trading volume stability: $\sum \frac{Current\ price - previous\ day\ price}{length\ of\ time}$;

(3) Compound growth rate: $\frac{Last\ day\ price / first\ day\ price}{Time\ of\ the\ last\ day - time\ of\ the\ first\ day}$;

Step2: Define the long-term holding value and risk of stocks.

Table 2 Stock evaluation index results (unit: %)

Stock code	Volatility	volume stability	compound growth rate	value	risk
abc001	0.123	0.014	1.17	0.0141	0.2944
abc002	0.102	0.082	1.2545	0.0363	0.229
abc003	0.251	0.043	0.6673	-0.0088	0.6436
abc004	0.093	0.016	1.0478	0.0042	0.2103
abc005	0.117	0.119	1.0801	-0.00022826	0.2676
abc006	0.126	0.007	1.3546	0.0647	0.2956
abc007	0.146	-0.026	2.7193	1.0485	0.1593
abc008	0.115	0.089	1.4514	0.0352	0.2249
abc009	0.092	0.069	0.905	-0.000069141	0.2505
abc010	0.065	0.04	0.663	-0.0103	0.3972

Use the polyfit function to perform polynomial fitting on the closing price and date of the stock [6].

According to the conventional operation of economics, the first-order equation is fitted here, and the slope of the first-order equation obtained by the fitting is used as the value of the stock; The function calculates the maximum loss rate of the stock on the second day, and uses the maximum drawdown value as the stock's risk. Step3: Read in the data in MATLAB to calculate the stock price fluctuation range, trading volume stability, compound growth rate, long-term holding value, and risk corresponding to each stock.

4.4 ANALYSIS OF RESULTS

According to the above research method, constructed five closely related indicators to evaluate stocks [7], the solution is solved with the help of MATLAB software. Obtain the stock evaluation index results, see Table 2 for details. Among them, the value of abc003, abc005, abc009, and abc010 is negative, indicating that the value of these stocks is not high and loses the value of long-term holding; the smaller the risk, the more valuable the short-term operation of the stock. Therefore, abc007 is suitable for short-term operations, and abc003 and abc010 are short-term operations. The value is small.

5. INVESTMENT STRATEGY BASED ON CLASSIFICATION AND CLUSTER ANALYSIS OF SELF-ORGANIZING COMPETITIVE NEURAL NETWORK

5.1 CLASSIFICATION BASED ON SELF-ORGANIZING COMPETITIVE NEURAL NETWORK

5.1.1 PRINCIPLE

Self-organizing competitive neural network is an unsupervised learning method. The self-organizing competitive neural network has three layers: input layer, competition layer, and output layer. The first layer is the input layer, the input method is linear input; the second layer is the competition layer, the competition rules: each time only the weight of the winning neuron is updated, fully connected to the input layer, and there is no connection between the neurons in the layer; The layer is the output layer: the output function is a linear function, and the trained weights are output linearly [8].

5.1.2 DETAILED NETWORK ESTABLISHMENT

Step1: Set variables. Weight matrix: the categories of behavior points, listed as dimensions; set the number of iterations.

Step2: Data normalization. In order to better achieve a stable state, too large or too large a value will cause the entire network training to be unstable. At this time, it is necessary to normalize the data, that is, normalize all values to (-1,1) Within the interval.

Step3: Input data and get output. Input all the input data, use the data to multiply the corresponding weight to get the output result.

Step4: Adjust the weight. Using a competitive strategy, find the value of the largest output, that is, the winning neuron, and only adjust this neuron to bring the weight

closer to the cluster center.

5.2 CLUSTER ANALYSIS

5.2.1 PRINCIPLE

Divide the research object (a collection of several individuals) into several categories according to a certain standard. The basis of clustering is the similarity between classes. The clustering of samples is called Q-type clustering. In Q-type clustering, it is often used Euclid distance, Absolute value distance, Chebyshev distance, Minkowski distance, Mahalanobis distance, Lance distance to measure the similarity between classes; clustering of variables is called R-type clustering. In R-type clustering, the correlation coefficient and the angle cosine of the variable are commonly used to measure the degree of similarity between variables. When categorizing the research objects into categories, the clustering method is called hierarchical clustering, and the clustering method is called decomposition clustering method [9].

5.2.2 HIERARCHICAL CLUSTERING

The research goal is to classify multiple stocks according to their key indicators, that is, systematic clustering. The following describes the steps of systematic clustering of stocks. Suppose there are n stocks, and each stock has p indicators. The basic steps of systematic clustering are: first treat each stock as one category, and there are a total of n categories. According to the degree of similarity between individuals, the most The two similar categories are merged into a new category, and the n-1 category is obtained, and then the two most similar categories are found in the n-1 category, and the n-2 category is obtained. Repeat the above process until all n categories are merged So far as a big category [10].

5.3 ARBR SENTIMENT INDICATOR

5.3.1 DEFINITION AND CALCULATION FORMULA

The sentiment indicator, referred to as ARBR, is composed of the popularity indicator (AR) and the willingness indicator (BR).

$AR = \frac{\text{The sum of } N \text{ days (the highest price of the day-the opening price of the day)}}{\text{the sum of } N \text{ days (the opening price of the day-the lowest price of the day)}} \times 100;$

$BR = \frac{\text{Sum of } N \text{ days (Highest price of the day-Closing price of the previous trading day)}}{\text{Sum of } N \text{ days (Closing price of the previous trading day-Lowest price of the day)}} \times 100$

5.3.2 APPLICATION RULES

(1) $BR < AR$, and $BR < 100$, consider buying on dips; (2) When $BR < AR$, $AR < 50$, it is a buy signal; (3) BR falls back from the peak, and the drop reaches 1/2. , If there is no warning signal for AR, buy on dips; (4) BR rises rapidly, and AR is in consolidation or a slight retracement, should be sold on rallies; (5) AR and BR rise from the bottom for a period of time , When it reaches a certain high and stagnates or declines, it means that the stock price is close to the top, and

shareholders should sell on rallies.

5.4 ANALYSIS OF RESULTS

According to the previously calculated five indicators of stock price fluctuation, volume stability, compound growth rate, long-term holding value and risk, the ten stocks are divided into three categories[11]. The classification results based on self-competitive neural networks are different from the results of systematic clustering, but they all have certain reference value. In the future, you can select stocks belonging to different classes and combine ARBR sentiment indicators for portfolio investment to reduce the systemic risk of investment. The classification based on the self-competitive neural network is shown in Table 3, and the clustering tree[12] obtained by systematic clustering is shown in Figure 2.

Table 3 Classification based on self-competitive neural network

Stock code	Type	Stock code	Type
abc001	2	abc006	3
abc002	3	abc007	3
abc003	1	abc008	3
abc004	1	abc009	1
abc005	2	abc010	1

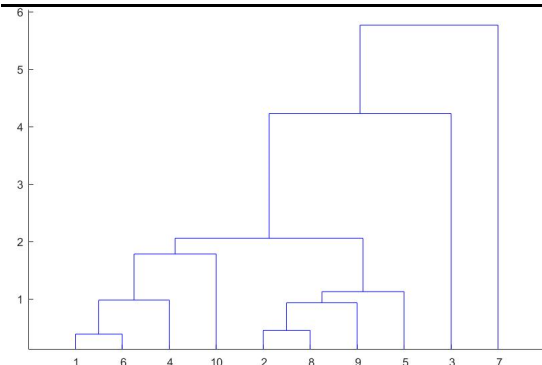


Figure 2 Cluster tree

6. CONCLUSION

This paper uses neural network algorithms to predict the opening price, highest price, lowest price, closing price, and trading volume of ten stocks respectively. According to the constructed indicators, the stock price fluctuation range is small, the trading volume is stable, and the compound growth rate is high. High-quality stocks, get the long-term holding value and risk of stocks. The research on the important parameters of securities investment can achieve a deep understanding of the diversification of securities products, so as to realize the investment purpose of diversifying risks and improving benefits. According to relevant indicators, using self-organizing competitive neural networks and other methods to classify securities products[13] and then make investment portfolios, several suggestions are made: (1) Combination investment method based on the results of stock classification to reduce systemic risks; (2) Long-term stocks The holding value constraint and

the maximum loss rate constraint on the next day hedge the system risk of securities investment, thereby effectively reducing investment risk; the MATLAB program has been debugged many times to avoid the impact of improper operation on the results. The model established in this paper is closely integrated with real life and fully reflects the close connection between modeling and economic life, it has more applications [14]; it also has a certain value for portfolio investment in the future securities investment industry, and contributes to the optimization of the industry's competitive technology [15-16].

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Research on Influencing Factors of National Tourism Economy Based on Multiple Linear Regression Model and SEM

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Abstract: In order to understand the influencing factors of the development of national tourism economy, the mathematical models were established respectively from the macro and micro perspectives. By collecting and searching, the paper establishes a multiple regression model based on panel data to analyze the factors affecting the national tourism economy from a macro perspective. At the same time, a dummy variable is added to explain quantitatively the impact of the release and implementation of government policies on tourism development. In order to study the development of tourism economy from the micro perspective, a questionnaire survey was conducted on the current tourism status and psychology of residents, and 114 questionnaires were collected. Based on the questionnaire data, a structural equation model was constructed to study the factors influencing the national tourism consumption psychology. Based on the analysis of multiple regression and structural equation model, the corresponding policy suggestions are put forward.

Keywords: Tourism economy; Tourism consumption psychology; Tourism development; Dummy variable

1. INTRODUCTION

At the present stage, people's basic material needs have been met, and China has entered a well-off society in an all-round way. On this basis, people pay more attention to high-quality spiritual life. Under this background, tourism industry has gained tremendous development along the way. Due to its wide coverage, high degree of relevance and strong driving force, tourism promotes economic development, improves people's living standards and adds a brick to the optimization of China's industrial structure. The report of the 19th National Congress of the Communist Party of China clearly points out that China's economy has changed from a stage of rapid growth to a stage of high-quality development. Therefore, to realize high-quality development of tourism and give full play to the comprehensive driving effect of tourism is an important direction and requirement of The Times for tourism development in the future.

ACADEMIC PUBLISHING HOUSE

Many factors affecting the development of tourism industry, including geography, currency value, consumption idea and so on, the government's policy also can produce great influence on the development of tourism industry, on December 1, 2009, the State Council issued the "opinions about speed up the development of tourism", also is the national tourism administration in 2009 as the "ecological tourism year", in the heart of the model concrete analysis of the effect of government policies for tourism development. The consumption concept of the people will also have a certain impact on the tourism economy. This paper will also analyze the impact of the consumption concept of the people on the tourism economy from a micro perspective.

2. MACROECONOMIC ANALYSIS OF TOURISM

2.1 SELECT FACTORS

From the point of view of establishing macro tourism economic model, it is necessary to quantify all macro factors. First of all, an indicator of the development trend of tourism, namely the explained variable in the model, should be selected to reflect the development of tourism not only in the number of tourists, but more in the economic development driven by tourism, and the consumption brought by tourism is an important factor driving the whole social and economic development. Secondly, the factors that affect the development of tourism, namely the explanatory variables in the model, should be determined. The factors that affect the development of tourism mainly include the number of tourists, the cost of trips and, most importantly, the income of residents. According to Maslow's hierarchy of needs, people only lower levels of demand, will shift the demand for higher level, that is to say, only earning more than needed to meet the demand of basic income, people will have a higher demand, so national income is the crucial factor in the development of tourism; In addition, price index, emergency factors and government policies will all affect the development of tourism to some extent. [1-2]

Quantitative said in a certain period of tourism industry for economic development situation, we

select the total cost of a 2000-2019, the national tourism as explanatory variables, the total cost in the national tourism as indicators of tourism development, reference "analysis of the influence factors of the development of modern tourism and the influence factors of major tourist city tourism development in analysis and evaluation", select the consumer price index (CPI), the index of national income, the residents' consumption level, the number of domestic residents travel abroad and international market energy price index as explanatory variables.

2.2 MODEL ESTABLISHMENT AND

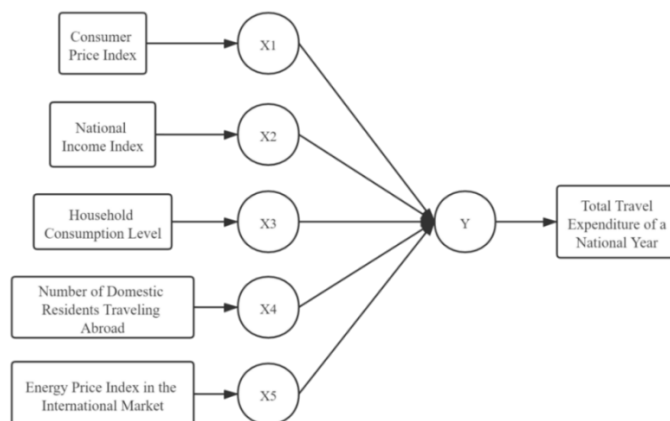


Figure 2 Diagram of Multiple Regression Model

Then the multiple regression model is as follows::

$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + u$
 20 years of data from 2000 to 2019 were brought into the model, and the estimated result was:

$$\hat{Y}_i = 4410.427 - 14.3382X_1 - 13.4434X_2 + 3.9873X_3 + 0.2925X_4 + 3.6790X_5$$

(5141.504) (14.0884) (1.5455) (0.1678) (0.2011) (5.4818)
 t = (0.8578) (-1.0177) (-8.6989) (23.7620) (1.4547) (1.4547)

$R^2 = 0.9996 \bar{R}^2 = 0.9995 F = 7840.622 n = 20$

It can be seen from the preliminary analysis,coefficient of determination R^2 is relatively large, the joint

PRELIMINARY SOLUTION

In the multiple regression model, Explanatory variables include Consumer Price Index (X1), National Income Index (X2), Household Consumption Level (X3), Number of Domestic Residents Traveling Abroad (X4) and Energy Price Index in the International Market (X5), the explained variable is the Total Travel Expenditure of a National Year. The data from 2000 to 2019 are selected as sample data for parameter estimation. The multiple regression model is shown as Figure 1.

significance of parameters in F-test is also very strong, the t-test of some explanatory variables is not significant, indicating that there may be a serious multicollinearity.

2.3 PRELIMINART TEST OF MODEL

First of all, from the above analysis, the model may have multicollinearity. In order to prove the above conjecture, EvIEWS software was used to calculate the correlation coefficients between the explanatory variables X1,X2,X3,X4, and X5:

Table 1 Correlation Numbers

	X1	X2	X3	X4	X5
X1	1.000000	0.993237	0.977015	0.977305	0.445917
X2	0.993237	1.000000	0.992018	0.990520	0.369848
X3	0.977015	0.992018	1.000000	0.995982	0.279789
X4	0.977305	0.990520	0.995982	1.000000	0.282412
X5	0.445917	0.369848	0.279789	0.282412	1.000000

From the table of correlation Numbers, it can be seen that the explanatory variables X1, X2, X3, and X4 are strongly correlated, and at this time, the model has a relatively serious multi-collinearity. In the presence of multicollinearity, the variance of parameter estimation will be overestimated, and its standard error will also increase, which will lead to a larger confidence interval of estimated parameters, and it is easy to make wrong judgment in hypothesis testing. At the same time, it also leads to a too large determination

coefficient R^2 , a high joint significance of F-test parameters, and a low significance of t-test for some explanatory variables.

Then, In order to test whether there is heteroscedasticity in the model, Glejser test can be used to test and the test number can be obtained:

$$nR^2 = 6.2673$$

Its significance was 0.2811>0.05, so the number of tests was not significant, that is, there was no heteroscedasticity in the model and no modification of

heteroscedasticity was required.

Finally, the partial autocorrelation coefficient was used for the autocorrelation test of the model, and the test was carried out in the way of postponing 12 periods. The partial autocorrelation table was obtained as Table 2.

Table 3 PAC Inspection

Autocorrelation	Partial Correlation	AC	PAC	Q-Stat	Prob
		1 -0.198	-0.198	0.9101	0.340
		2 -0.114	-0.160	1.2275	0.541
		3 -0.168	-0.242	1.9613	0.580
		4 -0.378	-0.562	5.8870	0.208
		5 0.420	0.091	11.067	0.050
		6 -0.034	-0.171	11.104	0.085
		7 -0.081	-0.373	11.326	0.125
		8 0.106	-0.151	11.741	0.163
		9 -0.255	-0.280	14.347	0.111
		10 0.306	-0.101	18.470	0.048
		11 0.010	-0.150	18.475	0.071
		12 -0.129	-0.176	19.395	0.079

It can be seen from the table that the partial autocorrelation coefficient of the model slightly

Table 4 Stepwise Regression

Sequence	Variable	Variable	Variable	Variable	Variable	Corrected Determination Coefficient \bar{R}^2	F
1	X1					0.899805	171.6302
2	X1	X2				0.960732	233.4279
3	X1	X2	X3			0.999510	390.5929
4	X1	X2		X4		0.981056	328.9922
5	X1	X2			X5	0.972137	221.966
6	X1				X5	0.963052	248.6176
7		X2			X5	0.973614	351.5372

First, the explanatory variable X1 was selected for simple linear regression to obtain the corrected determination coefficient \bar{R}^2 and F statistic of the regression model, and the t-test was observed to see whether it passed. According to the analysis results, the fitting results of the model were good. The correction coefficient $\bar{R}^2=0.899805>0.85$ between the explanatory variable and the explained variable was significantly correlated, and the f-statistic was also large.

Introducing variable X2 model, analysis again, get the new model regression results, it can be seen: the introduction of X2, further optimize the modeling, and F statistic correction r-squared figures have improved, so to save variable X2, but in the previous phase relation table of X1 and X2 has higher correlation coefficient, but the introduction of X2 did not make explanation variable and constant term t-test failed, may be due to the already introduced less explanatory variables.

The explanatory variable X3 was introduced into the model and analyzed again. The regression results of the new model were obtained. It can be seen that the introduction of X3 led to a minimal improvement in the correction coefficient \bar{R}^2 and F statistics, but it led to the failure of other explanatory variables and constant parameter t-tests, so X3 was not retained.

The explanatory variable X4 was introduced into the model and analyzed again. The regression results of the new model were obtained. The introduction of X4

exceeds the threshold when the delay period is only 4, and has no significant influence on the model. On the whole, there is no serious autocorrelation, and the model autocorrelation test is passed, so there is no need to modify the model autocorrelation.

2.4 STEPWISE REGRESSION METHOD

Through the preliminary test of the model, it can be known that the multicollinearity exists in the model, which violates the classical assumption, so the stepwise regression method can be used to eliminate some variables. First of all, a simple regression analysis should be made of each explanatory variable and the explained variable respectively. However, since the correlation coefficient between X1,X2,X3 and X4 variables is relatively large, X1 can be selected for the regression analysis:

resulted in minimal improvement of the correction coefficient \bar{R}^2 and F statistics, and other explanatory variables and constant term parameters' t-tests were not passed.

Introducing variable X5 model, analysis again, get the regression results of the new model, the introduction of the X4 led to correction of determination coefficient \bar{R}^2 and improve the F statistics have tiny margin, the interpretation of the other variable and constant parameter t-test does not pass, but can be seen from the table of phase relations, explained variable X5 and there is no strong correlation between the rest of the explanatory variables, and there is strong correlation between the X1 and X2, so will the X1, X2, respectively, and X5 for regression analysis.

By regression analysis of X1 and X5, the new model regression results were obtained. It can be seen that X1 and X5 were used as explanatory variables, and the corrected determination coefficient $\bar{R}^2=0.963052>0.85$, showing a significant correlation. The F statistic was also large, and there was no multicollinearity.

Then the form of multiple regression model is:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_5$$

The data of 20 years from 2000 to 2019 are brought in, and Eviews is used to estimate the parameters to get the final estimation results:

$$\hat{Y}_i = -9787.574 + 17.98266X_2 - 98.79613X_5$$

$$(1920.387) (0.692765) (21.59843)$$

$$t = (-5.096668) (25.95782) (-4.574227)$$

$$R^2 = 0.976391 \quad \bar{R}^2 = 0.973614 \quad F = 351.5372 \quad n = 20$$

In this case, there is no serious multicollinearity in the model, which can be applied to theoretical data analysis.

2.5 DATA TREND ANALYSIS

On December 1, 2009, the State Council issued the opinions on accelerating the development of tourism, which was also designated as the "eco-tourism year" by the State Tourism Administration. In order to analyze the impact of policies on the development of tourism, it is necessary to conduct a trend analysis first, with the year as the horizontal axis and the explained variable annual total tourism expenditure (y) as the vertical axis data, making a scatter chart and adding a trend line as Figure 3.

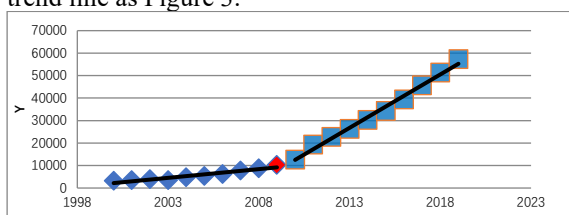


Figure 4 Trend of Total Tourism Expenditure in National Year

From the figure, we can clearly see that before and after 2009, the change slope of the total national annual tourism expenditure has changed significantly, and the marginal increase after 2009 is greater than that before 2009, which indicates that the impact of relevant national policies on the development of tourism in 2009 is positive and in line with practical significance.

2.6 INTRODUCE DUMMY VARIABLES

How to quantitatively analyze the impact of government policies on tourism development? Virtual variables can be set by introducing virtual variables:

$$D_1 = \begin{cases} 0, & \text{before policy implementation} \\ 1, & \text{after the implementation of the policy} \end{cases}$$

The data before the implementation of the policy is from 2000 to 2008, and from 2009 to 2019 after the implementation of the policy:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_5 + \beta_6 (X_1 - 1870.6) D_1$$

The estimation results are obtained by Eviews:

$$\hat{Y}_i = -12007.47 + 19.76826X_2 - 85.46176X_5 + 3.706609(X_1 - 1870.6)D_1$$

$$\begin{matrix} (2012.425) & (1.029790) & (20.46870) & (1.696282) \\ t \\ = (-5.966666) & (19.19640) & (-4.175241) & (2.185138) \\ R^2 = 0.981817 & \bar{R}^2 = 0.978408 & F = 287.9886 & n = 20 \end{matrix}$$

The result of parameter estimation shows that the corrected determination coefficient \bar{R}^2 has been improved after the introduction of dummy variable. And the parameter t-test is all significant. $\beta_1 + \beta_6$ is the slope of the variable X1 after the equation is simplified and combined, namely the marginal increment. It means that for every unit of explanatory

variable X1 increased, the explained variable Y increased $\beta_1 + \beta_6$ with other explanatory variables unchanged. The marginal effect of the government policy on the model is $\beta_1 + \beta_6$, that is, the marginal growth of tourism economy increases $\beta_1 + \beta_6$ before and after the government policy is implemented.

2.7 FINAL MODEL TEST

The explanatory variable X2 is the national income index. In a practical sense, the growth of national income index is conducive to the development of tourism, and the estimated value of model parameters should be positive, which is consistent with the actual estimated result. The explanatory variable X5 is the energy price index in the international market. In a practical sense, the growth of the energy price index in the international market is not conducive to the development of tourism. The estimated value of the model parameters should be negative, which is consistent with the actual estimated result. The dummy variable D1 represents the impact of government policies on tourism development. From a practical perspective, the implementation of policies should be conducive to the development of tourism, and the estimated value of model parameters should be positive, which is consistent with the actual estimated results. Economic significance test passed.

The parameters of the model are estimated by the sample observation values of variables. In the previous analysis, the significance and goodness of fit of the model are tested, which can prove the reliability of the model and the significance of its parameters. The correction coefficient $\bar{R}^2 = 0.978408 > 0.85$, with a significant correlation, and the F statistic was 287.9886. The goodness of fit of the model and the significance test of the equation could both explain the reliability of the model. In the t-test of model parameters under the condition of 95% confidence, P values were all less than 0.05, and the significance test of parameters was also passed.

Through the study of the autocorrelation of model inspection (PAC), heteroscedasticity testing (White) test, results show that the model does not exist heteroscedasticity and autocorrelation, and before, and in the model have multicollinearity detail to be improved, the final model no longer exists serious multicollinearity, test through econometric model.

3. RESEARCH ON MICRO TOURISM CONSUMPTION PSYCHOLOGY

In order to deeply understand the micro factors of tourism economy, questionnaires were issued to understand the current status of residents' tourism, so as to analyze the internal correlation of the factors of residents' tourism consumption from the individual level, and the structural equation model was established to support the viewpoint.

The questionnaire consists of 11 questions, including a survey of residents' personal information (gender, age, income, etc.), travel expenses, travel reviews,

future travel intentions and other factors. In order to ensure the representativeness of the questionnaire, at least 110 questionnaires should be collected and distributed through the forum to achieve the purpose of random sampling. In the end, 114 questionnaires were collected, 113 of which were valid.

3.1 RELIABILITY AND VALIDITY TESTS

In order to explain the reliability of the questionnaire and the consistency of the results, the reliability and validity of the questionnaire data should be tested as Table 5.

Table 6 Questionnaire Reliability and Validity Test

Case Number	Reliability (Cronbach's α)	Validity(KMO and Bartlett's test)
Population 114		
Effective Case 113	0.673	0.652 0.000

As can be seen from the test data in the table above, Cronbach's $\alpha > 0.60$, KMO and Bartlett's test > 0.60 , Bartlett's test also passed, the validity and reliability test of the questionnaire show that the questionnaire has good reliability and can be used for analysis.

3.2 STRUCTURAL EQUATION MODEL ESTABLISHED

The main factors of the questionnaire survey include gender, age, income, travel expenses, travel reviews and future travel intentions. Based on the analysis of the survey data, the tourism status of residents is affected by their personal status (their gender, age and income), and their income is also affected by their age. Residents' travel expenses are affected by residents' income and gender, residents' travel frequency is affected by residents' gender and residents' age income, and residents' future travel intentions are affected by residents' gender and age.

According to the subjective framework, construct the structural equation model in the following figure (SEM) as Figure 5.

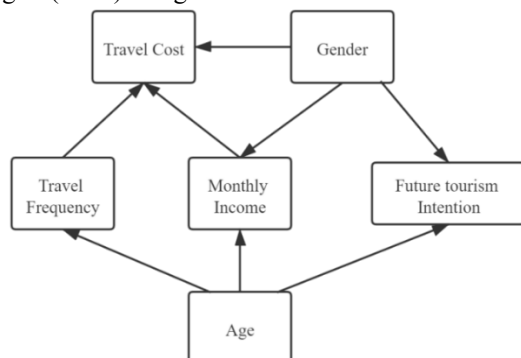


Figure 6 Structural Equation Model of Consumer Psychology

The above model shows that the tourism consumption of residents is affected by objective factors, and the gender, age and income of residents have a greater

impact on the frequency and cost of travel.

3.3 MODEL TEST

Use AMOS the data input, build a model, tested several (important check number is numerous, select the check number) as Table 7.

Table 8 SEM Model Test Index

Index Name	Value	Receiving Range
χ^2/df	1.079	[1,3]
SRMR	0.0413	[0,0.5]
RMSEA	0.026	[0,0.1]
TLI	0.987	[0.95,1+)
CFI	0.995	[0.95,1+)

From the Table 9, it can be concluded that the structural equation model test is passed, and the residents' tourism psychology is like the above analysis, residents' gender, age and income have a great impact on the residents' tourism psychology.

4. CONCLUSIONS AND RECOMMENDATIONS

From the form and parameters of the model, we can draw a conclusion: national income has a great impact on the development of tourism. From the level of industrial structure, we can know that the tourism industry located in the tertiary industry will have a huge development space in the future, and the basis of all this is that when the demand of the primary and secondary industries is relatively saturated, that is, after meeting the basic material needs, people turn to the right The pursuit of high-quality spiritual life, so national income is one of the most important factors in the development of tourism. The development of tourism is not unilaterally from tourism, simplify examination and approval procedures to promote the development of the industry, but to promote the development of the tourism industry as the core of the network, to stimulate the economy as a whole network, to arouse people's willingness to spend.

Can be seen from the structure equation model analysis, the residents' tourism consumption is not only influenced by income, age and gender on residents of residents travel consumption also has certain influence, that people of different ages in periodic differences of tourism consumption, the micro development of tourism economy and residents there is also a certain degree of correlation between gender factors. It can be concluded from the survey of questionnaire data that the overall travel frequency of men is significantly higher than that of women. Through the survey, the reason for the low travel frequency of women is mainly due to the consideration of safety.

Based on the analysis of the model, the following Suggestions can be put forward: 1. Deepen the reform and opening up of tourism industry, and strengthen the cooperation with foreign enterprises to benefit the people; 2. Strengthen international cooperation, actively communicate with cooperating countries, and simplify exit procedures; 3. To stabilize the trend of

economic growth and maintain the trend of benign economic growth, the national economy is a crucial factor in determining the development of tourism; 4. Strengthen safety management in tourist cities to ensure citizens' travel safety; 5. Innovate the vacation system, improve the paid vacation system of enterprises, and promote the development of tourism economy.[3-4]

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Research on the Pricing of Mobile Internet Self-service Labor Based on K-means Clustering

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Abstract: In the information age, a self-service model under the mobile Internet has quietly emerged. Users download relevant APPs, register as members, and receive tasks that need to be completed, and earn rewards for tasks calibrated by the APP. This paper uses K-means cluster analysis, multiple linear regression analysis, logistic regression and other methods to analyze the task of a completed project, study the task pricing law, and analyze the reasons for the uncompleted task. Besides, it establishes the new task pricing scheme of the project and also optimizes it.

Keywords: K-means Cluster Analysis; Multiple Linear Regression Analysis; Logistic Regression; Matlab; Pricing

1. PREFACE

With the rapid development of Internet technology, high technology, talent, equipment and other costs have limited the production and expansion of a group of companies to a certain extent, which has also prompted companies to find breakthrough points. Actively develop crowdsourcing means striving to increase employment. With the help of Internet and other means, tasks traditionally completed by specific enterprises and institutions are divided among all enterprises and individuals that voluntarily participate in, so as to maximize the use of public power to achieve higher efficiency and lower cost to meet production and living service needs. This mobile Internet-based self-service labor crowdsourcing platform provides companies with various business inspections and information collection. Compared with traditional market research methods, it can greatly save survey costs, and effectively ensure the authenticity of survey data and shorten surveys cycle. Therefore, APP has become the core of the platform, and the task pricing in the APP is its core element. If the price is unreasonable, some tasks will be ignored, which will lead to the failure of commodity inspection. Based on the task of a completed project, this paper studies the task pricing rules of this project, analyzes the reasons for the unfinished tasks, and establishes a new task pricing scheme for this project.

ACADEMIC PUBLISHING HOUSE

2. RESEARCH ON TASK PRICING LAW

2.1 THE IDEAS OF RESEARCH

Task GPS latitude and longitude and price are very strongly related to whether users download and use APP. Firstly, establish the three indicators of pricing, the location of each task, and the completion status. Secondly, establish the K-means clustering method and the binary logistic regression analysis mathematical model in the SPSS software. Using assumptions H_0 determines the price, the location of each task and the completion situation is significantly related. If $H_0 < 0.05$, then we reject the hypothesis H_0 , Otherwise, accept the hypothesis H_0 . Use regression analysis to establish the regression equation, and then get the reasons why the task is not completed; analyze the task pricing law, and solve the pricing law analysis through MATLAB drawing.

2.2 TASK PRICING LAW BASED ON K-MEANS CLUSTER ANALYSIS

In order to simplify the model, find a center point for the whole, and classify the center points. Firstly, use the K-means cluster analysis in the SPSS[1-10] to divide the task GPS latitude and longitude into five types of cluster center coordinates, and divide the latitude and longitude into 5 types of initial cluster center coordinate points (Table 1), and then perform 9 iterations. It can be seen that convergence is achieved because there is no change or small change in the cluster center. The maximum absolute coordinate of any center is changed to 0. The current iteration is 9. The minimum distance between the initial centers is 0.808. It can obtain 5 types of final cluster center coordinate points (Table 2), and finally get the mutual independence of the 9th iteration with a correlation coefficient of 0 and the Euclidean distance between the cluster center coordinate point and the task coordinate point (plane distance = Euclidean distance). According to the binary logistic regression analysis (Logistic regression) [1], the model was established, with the plane distance and the task price as the independent variables, and the task performance as the dependent variable, and the binary logistic regression equation was established:

$$y = \beta_3 x_3 + \beta_4 x_4 + \beta_0' \quad (1)$$

Analyze the pricing law through matlab drawing and task GPS latitude and longitude positioning map.

2.3 MODEL SOLUTION

Table 1 Initial Cluster Centers

Clustering					
	1	2	3	4	5
Task gps Latitude	22.81887	22.82452	23.81610	22.57872	23.47430
Task gps Longitude	113.67741	112.68325	113.95792	114.49360	113.16300

Table 2 Final Cluster Centers

Clustering					
	1	2	3	4	5
Task gps Latitude	22.94321	22.94321	23.58329	22.66128	23.16947
Task gps Longitude	113.75312	113.10047	113.59590	114.05206	113.31220

Table 3 Variables in the Equation

B	S.E.	Wals	df	Sig	Exp (B)	EXP(B)95%C.I.		
						Lower limit	Upper Limit	
Plane Distance	3.105	0.999	9.658	1	0.002	22.300	3.147	157.998
Task Price	0.089	0.02	18.809	1	0	1.093	1.050	1.137
Constant	-6.031	1.362	19.614	1	0	0.002		

Therefore, the binary logistic regression equation is:
 $y = 3.105x_3 + 0.089x_4 - 6.031$ (2)

Result Analysis: Table 3 shows the significance level of x_3 and x_4 are $Sig < 0.05$, so the significant influence of the variable x_3 and x_4 on the task performance also shows that the x_3 and x_4 is in the regression equation, and because $x_3 = 22.300$ in $Exp(B)$ is greater than 1, meaning x_3 is a risk factor. The farther the distance, the more remote the place is. People don't want to complete the task, which affects the completion of the task. $x_4 = 1.093$ is also a risk factor. Although many places are expensive to attract people to take pictures, people still give up due to many factors such as congested roads and poor environment, but there are also people who are willing taking pictures in order to earn more money, so the impact of the task price is not as great as the plane distance.

Table 4 Hosmer and Lemeshow Test

Steps	χ^2	df	Sig.
1	62.343	8	0

It can be seen from Table 4 that $\chi^2 = 62.343$, the regression analysis of the model is moderately good, and the Sig is far less than 0.05, which indicates that the establishment of the model is meaningful and more convincing.

2.4 MODEL INSPECTION

Bring the relevant data into the binary logistic regression equation:

$$y = 3.105x_3 + 0.089x_4 - 6.031$$

The task execution status was calculated through the formula of Excel. Through sorting and filtering, 50 completed and uncompleted were selected as the basis of the test. It was found that there was a little error in the test results, which was approximately equal to 1 or 0.

3. ESTABLISHMENT OF TASK PRICING LAW

MODEL

3.1 THE IDEAS OF RESEARCH

Firstly, by deleting more than 1,800 member data in Guangdong Province and deleting the reputation value below 100, we can use SPSS software to calculate the frequency of members in each city in Guangdong Province. Secondly, by calculating the membership based on the area of each city, the density of the city where it is located can be calculated. (Membership density = frequency/area of each city, expressed as $x_2 = f/s$)

Based on the above reasons, we can firstly establish a multiple linear regression mathematical model, and use the two indicators of membership density and plane distance to perform multiple linear regression analysis [1] to analyze whether the model is reasonable for the pricing plan. If it is reasonable, it ends. On the contrary, we need to consider other influences, and then build the model, so that we can choose the best solution. We use the R^2 and sig statistics of the two models as the conditions for selecting the optimal solution.

3.2 TASK PRICING MODEL BASED ON MULTIPLE LINEAR REGRESSION

Firstly, calculate the frequency of members in each city in Guangdong Province through SPSS software. Secondly, find the area of each city on the Internet. Finally, calculate the density of each city where the member is located. (Membership density=frequency/area of each city).It can be shown in Table 5:

The SPSS multiple linear regression is a linear regression model containing multiple explanatory variables, which used to explain the linear relationship between the explained variable and multiple other explanatory variables. The mathematical model of multiple linear regression analysis is:

$$y'_1 = \varepsilon' + \beta'_0 + \beta'_1 x'_1 + \beta'_2 x'_2 + \dots + \beta'_n x'_n \quad (3)$$

Equation (3) represents a n meta-linear regression model, in which there are n explanatory variables. This shows that the model is composed of two parts: firstly, the linear change part of the n explained variable x'_n caused by the change of explanatory variables y'_1 , namely $\varepsilon'_0, \beta'_0, \beta'_1, \beta'_2, \dots, \beta'_n$; secondly, the changes caused by other random variables y'_1 , that

Table 5 Density of Member Cities

City	Frequency	Area of each city (ten thousand square kilometers)	Density
Dongguan City, Guangdong Province	31	0.246	126.016
Foshan City, Guangdong Province	26	0.386	67.358
Guangzhou, Guangdong	79	0.743	106.326
Huizhou City, Guangdong Province	2	1.12	1.786
Jiangmen City, Guangdong Province	1	0.954	1.048
Maoming City, Guangdong Province	1	1.144	0.874
Shaoguan City, Guangdong Province	1	1.86	0.538
Shenzhen City, Guangdong Province	86	0.195	441.026
Zhanjiang City, Guangdong Province	2	1.249	1.601

$$y'_1 = \beta'_0 + \beta'_1 x'_1 + \beta'_2 x'_2 + \dots + \beta'_n x'_n \quad (4)$$

3.3 SOLUTION OF THE PRICING

Solving by SPSS multiple linear regression, we can get the multiple linear regression equation of task pricing $y'_1 = 66.926 - 0.008x'_2 + 16.826x'_3$, and $R^2 = 22.6\%$, $Sig < 0.05$, so task pricing is used as the dependent variable. Using Membership density, plane distance as independent variables to perform multiple linear regression analysis model is not reasonable, because R^2 is too small. The significance is too low, and there is no statistical significance for the task pricing scheme. Several more dependent variables should be found to do multiple regression analysis again, so the task law model is further improved.

3.4 IMPROVEMENT OF TASK PRICING MODEL

Through online search, we have made a guess whether transportation convenience is related to task pricing, so the relationship between task pricing and transportation convenience, membership density and plane distance is established and a multiple linear regression equation model in matlab is established.

We know that if the number of independent variables is more than one, and we can build a multiple linear regression model. Its mathematical model can be written as

$$\begin{cases} y''_1 = \beta''_0 + \beta''_1 x''_1 + \beta''_2 x''_2 + \beta''_3 x''_3 + \dots + \beta''_m x''_m + \varepsilon'' \\ \varepsilon'' \sim N(0, \mu^2) \end{cases} \quad (5)$$

Among which ε'' is available, $\beta'' = (\beta''_0, \beta''_1, \beta''_2, \dots, \beta''_m)$ becomes the regression coefficient vector.

Now we get a sample with a sample size of n , and its observation data are:

$$(y''_i, x''_{i1}, \dots, x''_{im}), i = 1, 2, \dots, n (n > m) \quad (6)$$

Bringing (5) into it, and we can get

is $\varepsilon', \beta'_0, \beta'_1, \beta'_2, \dots, \beta'_n$, are all non-parameters of the model. The parameter estimation of the multiple regression model is the same as the linear regression equation. It is also the regression equation of the multiple linear regression model under the premise that the sum of squares ε' of the error is required to be minimized, namely:

$$\begin{cases} y''_i = \beta''_0 + \beta''_1 x''_{i1} + \beta''_2 x''_{i2} + \beta''_3 x''_{i3} + \dots + \beta''_m x''_{im} + \varepsilon''_i \\ \varepsilon''_i \sim N(0, \mu^2), i = 1, 2, \dots, n \end{cases} \quad (7)$$

That is:

$$\vec{x}'' = \begin{bmatrix} 1 & x''_{11} & \dots & x''_{1m} \\ \vdots & \vdots & & \vdots \\ 1 & x''_{n1} & \dots & x''_{nm} \end{bmatrix}, \vec{y}'' = \begin{bmatrix} y''_1 \\ \vdots \\ y''_n \end{bmatrix} \quad (8)$$

$$\varepsilon'' = (\varepsilon''_1, \dots, \varepsilon''_n)^T, \beta'' = (\beta''_0, \beta''_1, \beta''_2, \dots, \beta''_m)^T \quad (9)$$

So, (5) can be written in matrix form:

$$\begin{cases} \vec{y}'' = \vec{x}'' \beta'' + \varepsilon'' \\ \varepsilon'' \sim N(0, \mu^2 I) \end{cases} \quad (10)$$

3.5 HYPOTHESIS TESTING OF REGRESSION MODEL

In practical applications, we do not know whether there is a linear relationship between the dependent variable y'' and the independent variable $x''_1, x''_2, \dots, x''_n$, so it is necessary to test the significance of the regression equation.

If all $|\hat{\beta}_j|, j = 1, \dots, m$, are very small, it reflects that the linear relationship between y'' and $x''_1, x''_2, \dots, x''_n$ is insufficient, so the following assumptions can be made:

Null hypothesis: $H_0: \beta''_1 = \dots = \beta''_m = 0$;

Alternative hypothesis: H_1 : at least one β''_j is not equal to zero ($j = 1, 2, \dots, n$)

When H_0 can be set, statistics are:

$$F = \frac{U/M}{Q/(n-m-1)} \sim F(m, n-m-1) \quad (11)$$

Under the level of significance α , there is $F(m, n-m-1)$ The quantile $F_\alpha(m, n-m-1)$ of the distribution, and the calculated value is $F = \frac{U/m}{Q/(n-m-1)}$

At the significance level α , the test rules are:

When $F < F_\alpha(m, n-m-1)$, accept H_0 . That is, the regression equation is not significant; Otherwise,

reject H_0 , indicating that the regression equation is not significant.

Rejection of H_0 only means that the linear relationship with $x_1'', x_2'', \dots, x_n''$ is not obvious. There may be a nonlinear relationship, such as a square relationship. There are also some indicators to measure the degree of correlation between y'' and $x_1'', x_2'', \dots, x_n''$, such as using the ratio of the regression sum of squares to the total sum of squares to define

$$R^2 = \frac{U}{S_T} \tag{12}$$

In the formula, R [0,1] is called the multiple correlation coefficient. The larger of the R , the closer the correlation between y'' and $x_1'', x_2'', \dots, x_n''$. Usually, R is greater than 0.8 (or 0.9) before the correlation is considered valid.

3.6 SOLUTION OF THE MODEL

We calculated independent variables such as transportation convenience x_1'' , membership density x_2'' , distance x_3'' , etc. and performed multiple linear regression predictions. Firstly, it makes these data into an EXCEL table, we select the first 351 data for regression prediction, and then filter the most suitable data through K-means clustering for model verification. We save data in the form of a table in the MATLAB directory and name it with the file name "programone". Read the file by calling the xlsread() function. Then through MATLAB programming, we output the results to see if there is a linear relationship with the price y'' of the dependent variable task and find the equation.

The following results can be obtained through MATLAB programming:

b= 76.4506 -4.6460 -0.0087 17.7669

bint= 74.4445 78.4568

-5.5682 -3.7237

-0.0114 -0.0061

14.4141 21.1197

stats =0.703 76.1088 0.0000 6.3734

It can be found that the results obtained are more successful, because $p < 0.05$ the model is available when $\alpha = 0.05$, or the model is also available when $\alpha = 0.01$; $R^2 = 0.703$ is smaller, and the confidence

interval of $\beta_0'', \beta_1'', \beta_2'', \beta_3''$, does not contain the zero point. That is, the linear regression equation has a significant effect. So for the second question, we will adopt a plan to improve the model. It can be seen that the regression equation is as follows:

$$y'' = 76.4506 - 4.6460x_1'' - 0.0087x_2'' + 17.7669x_3'' \tag{13}$$

3.7 TEST OF MODEL

Firstly, perform K-means clustering on the data that did not participate in the establishment of the model, and then verify the model results. K-means clustering obtains 3 initial cluster center coordinates. After three iterations, the correlation coefficient becomes zero, and they are independent of each other. 3 final cluster centers are obtained. The following are the data results obtained through SPSS. It can be seen from Table 6-8 that the P value is less than 0.05, and the cluster analysis has statistical significance. Then the three final cluster centers are substituted into the regression equation, and the final results are not much different, which shows that the model establishment is relatively successful.

Table 6 Iteration History

Iterative	The change within cluster centers		
	1	2	3
1	4.445	0.517	4.816
2	3.536	0	0.386
3	0	0	0

Convergence is achieved due to no changes or small changes in the cluster centers. The maximum absolute coordinate of any center is changed to 0. The current iteration is 3. The minimum distance between the initial centers is 20.001.

Table 7 Final Cluster Centers

	Clustering		
	1	2	3
Traffic Convenience	1.93	1.819	1.931
Member Density	126.016	67.358	126.016
Distance	0.106986	0.331239	0.236908
Task Price	66.5	75.5	72.5

Table 8 The Table of Error Analysis

	Clustering		Error		F	Sig.
	Mean square	df	Mean square	df		
Traffic Convenience	0.257	2	0.007	168	39.190	0
Member Density	69720.683	2	0	168	2.515E16	0
Distance	0.018	2	0.004	168	4.472	0.013
Task Price	1115.308	2	23.798	168	46.866	0

The F-test should only be used for descriptive purposes, because the selected clusters will be used to maximize the difference between cases in different clusters. The observed significance level has not been corrected accordingly, so it cannot be interpreted as a test of the hypothesis that the cluster means are equal.

4. OPTIMIZATION BASED ON TASK PACKAGING PRICING MODEL

Considering that in actual situations, multiple tasks may be more intensive, which increases the possibility that users will compete for selection. Our consideration is to combine these tasks together for

package release. This further improves the APP's plan to take pictures to make money, which is conducive to reducing costs. In order to reasonably improve the packaging problem and the price tag, we establish a BP neural network model, and modify the model based on the task pricing law model. In order to simplify the problem, our BP neural network does not introduce some indicators like traffic convenience, membership density and distance. Through the establishment of a new program model, it is more credible and convincing.

4.1 OPTIMIZATION MODEL

The data normalization process converts all data into numbers between $[0, 1]$. The purpose is to eliminate the magnitude difference between the data of each dimension, and avoid the large difference in the magnitude of the input and output data, which will cause large prediction errors. It is convenient to the following data processing and ensuring faster convergence when the program is running.

After normalizing the data, it is necessary to determine the number of network input layer nodes n , hidden layer nodes, output layer nodes m , number of iterations e , learning rate s , and target error g according to the system input and output sequence (x, y) . Considering that this problem is a non-linear function relationship with 2 inputs and 1 output, a structured neural network $2-N_i-1$ is established, where N_i is the number of hidden layer nodes i .

We refer to the following formula to determine the optimal number of hidden layer neurons:

$$\begin{cases} l < n - 1 \\ l < \sqrt{m + n} + b \\ l = \log_2 n \end{cases} \quad (14)$$

In practical problems, the choice of the number of nodes in the hidden layer is first to refer to the formula to determine the approximate range of the number of nodes. Then it uses trial and error to determine the best number of nodes. After many experiments, we choose the $N_1 = 9$, $N_2 = 11$, $N_3 = 8$, BP neural network to achieve higher accuracy at this time.

It can be seen from the results that the trained BP neural network can more accurately reflect the functional relationship between GPS and task pricing; therefore, a comparison of pricing and GPS latitude and longitude can be simulated in matlab.

According to the above simulation, we can get y_1''' and x_1''' . The relationship between GPS and X2 GPS longitude can be obtained:

$$y'' = 23.2x_1''' - 4.67x_2''' + 68.84 \quad (15)$$

Model conclusion: Through the establishment of this model, it can be seen that our BP neural network model reflects the linear relationship between GPS and task pricing to a certain extent. It solves the defect that users compete to choose when multiple tasks are concentrated, and it also provides a certain means and

basis for combining tasks together for packaging and publishing.

Model verification: We substitute the latitude and longitude in Annex 1 into the above formula, and we find that there is a small gap between the pricing of the completed project and the task. This gap is about 9%, but the gap is always inevitable. What we have to do is to use error is within our allowable range. Of course, the error may be because the pricing is also related to other factors, such as the GDP of a certain city, or the GDP per capita of a certain place. Because the establishment of our model cannot consider too many factors, otherwise it may not be accurate and convincing.

5. CONCLUSION

The model used EXCEL, SPSS, MATLAB and other software for data processing, and got useful data for the problem. In the calculation process, SPSS is used to predict and screen a large amount of data, which optimizes the entire model. Through the regression model, the factors that affect pricing are objectively analyzed. The impact of multiple factors on pricing is more fully demonstrated. The model has fully verified the reliability of the model through SPSS multiple linear regression analysis, K-means cluster analysis and binary logistic regression analysis (Logistic regression), as well as the multiple linear regression analysis and drawing of matlab. The establishment of the model is easy to understand, and the results are close to reality. For the task joint packaging problem, modern BP neural network algorithms can be used, which simplifies the problem and facilitates the establishment of the model.

The various optimization models established in this paper are effective methods to solve practical problems. At the same time, we also use BP neural network to simplify complex problems. Our model can be applied in real life to search for information and conduct various business inspections for companies, providing a more effective and more scientific and effective program model.

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Review of Past Research on the Impact of Boundary-Spanning Behavior on Organizational Performance-Based on CiteSpace's Knowledge Map Analysis

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Abstract: In order to deal with the complexity of work, organizations actively seek external cooperation across the boundary. Recognizing the boundary-spanning behavior of subjects is the necessary prerequisite basis for organizing boundary-spanning activities to improve organizational performance. With the help of CiteSpace software, this paper makes a quantitative analysis of 123 literatures in CNKI database with the theme of "cross-border + performance" from 2009 to 2018, and draws a visual knowledge map. This paper reviews the impact of cross-border behavior on organizational performance of boundary-spanning staffs, leaders and teams, and compares and comments the three aspects of boundary-spanning behavior, so as to provide reference for future research directions of boundary-spanning behavior and provide theoretical basis for organizing boundary-spanning activities.

Keywords: Boundary-spanning Behavior; Organizational Performance; CiteSpace

1. INTRODUCTION

With the development of information technology and economic globalization, the competitive environment of enterprises is becoming increasingly fierce. The era puts forward higher requirements for the research and development technology and market control ability of the enterprise. An enterprise would be unable to survive and develop if it still only relied on the internal knowledge resources. Therefore, enterprises need to seek external resources and support across the border from traditional organization in order to make up for the weakness of their own. As early as the 1980s, foreign scholars proposed that enterprises should step into the broader organizational field where teams work and conduct collaborative adjustment[1].[2] As a critical bridge between enterprises and external environment, boundary spanners have attracted extensive attention from domestic scholars, and boundary-spanning behavior has gradually become a current research hotspot. Boundary-spanning behavior is the result that the behavior subject coevolves with

the change of external environment due to knowledge, ability or common interests[3], which is divided into three dimensions: ambassador, task coordination and search[4]. Boundary-spanning behavior is the objective need of enterprise development, which affects organizational output such as team effectiveness and performance of new product development. If an enterprise wants to develop and further improve its innovative performance in the dynamic and complex market environment, it is the only way for it to seek cooperation beyond the boundaries of traditional organizations.

As boundary-spanning behavior is becoming increasingly important to enterprises, scholars at home and abroad have also done extensive research on boundary-spanning knowledge, and many scholars have also combed and commented the previous research. Jennifer A Marrone(2007) reviewed and defined team boundary spanning in detail, divided team boundary- spanning work into multiple levels, and predicted members' boundary- spanning level and team vitality based on individual and team level[5]. Wei Xiong and Xiaobin Feng et al. (2011) discussed the antecedent, outcome, situational factors and relevant variables measurement of boundary-spanning search studies abroad [6].

Jesiek BK and Mazzurco A(2018) employed multiple reviewers, and then reviewers used mixed deductive to summarize the content ,analysed the processes and encoded each paper.The research concluded that boundary spanning is a framework consisting of six boundary types, three roles, definitions and five kinds of activities[7]. Hongchun Wang and Xiaodong Bu (2018) reviewed the impact of boundary spanning on employees' behavior and attitude from the perspective of cross-organizational network[8-27]. It is not difficult to find that scholars have made many achievements in reviewing foreign boundary-spanning research. However, most of them adopted a single qualitative literature review method. Given the domestic research on boundary- spanning behavior is still in the development stage, the academic research

on the influence of boundary- spanning behavior on organizational performance lacks systematic theoretical system comment.

In order to comprehensively grasp the research status of the impact of boundary-spanning behavior on organizational performance and sort out its knowledge base, this paper uses CiteSpace software to make a visual analysis of relevant literature in CNKI(China National Knowledge Infrastructure), and then makes a literature review on this basis. This paper will quantitatively analyse relevant information such as the publication process and keywords of the literature, qualitatively analyse the focus issues of the impact of boundary-spanning behaviors on organizational performance, point out the deficiencies of the existing research and predict the future research direction.

2 RESEARCH METHODS AND DATA STATISTICS

2.1 RESEARCH METHODS

software is an information visualization software developed by Professor Chao-mei Chen et al. in the Java language, which can transform a large number of literature data into knowledge maps. This study presents the complex domain knowledge in a large number of literatures in the form of atlas through data mining and information processing combining theories such as structural hole theory based on scientific development model theory, scientific frontier theory, and social network analysis, etc. . CiteSpace software has been widely used at home and abroad due to its powerful and advanced function,. This paper takes core journals of CNKI , source journals of CSSCI , master and doctoral dissertation as research objects and then analyses high-frequency keywords in boundary-spanning behavior research with the help of CiteSpace software, and research hotspots and development frontiers in this field will be revealed at the end of this paper.

2.2 DATA SOURCES

In March 2019, we selected literatures related to boundary-spanning behavior from 2009 to 2018 in CNKI. Advanced search was carried out on the database website with "crossover" + "performance" as the theme. The literature sources mainly came from core journals and CSSCI. After deleting irrelevant literature, 71 journal literature samples were obtained. As there were few references in domestic journals available for reference, a total of 123 literature samples were collected after adding the master and doctoral dissertation as samples and deleting the literatures deviating from the research theme. This paper made a quantitative visual analysis in CNKI, and then we drew statistical charts including the annual distribution, authors, and journal sources of all literature in an EXCEL spreadsheet so as to make an overall analysis of the research status. We drew a visual map of keywords and analyzed the core knowledge structure and focus issues of the research as well as the research differences in different periods

with the help of CiteSpace software.

2.3 DESCRIPTIVE STATISTICS

According to retrieval and quantitative visual analysis in CNKI website, we found that the earliest research on boundary-spanning behavior began in 2003. From 2003 to 2008, "crossover" knowledge field is in bud, research on boundary-spanning behavior was few and discontinuous, and most of it was research on vertical and horizontal changes of enterprise boundaries. From 2009 to 2018, with the development of economic globalization and the formation of global competitive industrial pattern, research in the field of "boundary-spanning" knowledge continued to develop, and research on topics related to "boundary-spanning behavior" was on the rise, which indicated that scholars were gradually paying more attention to "boundary-spanning behavior". However, this study found that the scholars engaged in the field of boundary-spanning behavior in China were scattered, and there were fewer productive authors. Among them, the authors with the highest output are Guanfeng Shi (4 papers) and Jiang Wei (4 papers). Besides, research institutes mainly included Zhejiang University (10.9%), Shanghai Jiao Tong University (5.4%), East China University of Science and Technology (4.7%). Besides, the journals of boundary-spanning behavior research mainly included *Science and Technology Progress & Policy* and *Studies in Science of Science, leadership science, Management Review* and other journals . This study also found that there was a lack of academic communication and cooperation among research institutions in the field of boundary-spanning behavior.

2.4 HIGH-FREQUENCY KEYWORD ANALYSIS



Fig.1. CiteSpace keywords co-occurrence map
With the help of CiteSpace software, This paper selected "node type" as the keywords, threshold value assignment is (2,0,2), we got the keywords co-occurrence graph and after choosing "zone layout according to the time", we drew the following keywords co-occurrence map shown in figure 1. The picture from left to right on behalf of the year from 2009 to 2018, from far and near to show differences in every stage of the research topic and research, the closer the right keywords that represent the recent research and development of the frontier. The size of the node font represents the intensity of the research heat, and the number of the curve represents the degree

of connectivity between the research subjects. The number of nodes and lines is 35 and 47, indicating that the research on boundary-spanning behavior is relatively scattered and the degree of clustering of the research subjects is relatively low.

As revealed in fig.1, in the early stage, scholars paid more attention to innovation search at the enterprise level; in the middle stage, they mainly focused on leadership boundary spanning and R&D network; in the middle and late stage, they were mainly concentrated to the business model matching boundary-spanning search market knowledge and technical knowledge; in the later stage, they paid more attention to team boundary-spanning behavior. From the perspective of boundary-spanning subject level, team's boundary spanning belongs to team level, while leaders' boundary spanning belongs to individual level. In recent years, employees' boundary spanning has also become a research hotspot. In view of this, this paper will carry out a research review and comment from three aspects of boundary-spanning subject.

3. A REVIEW OF RESEARCH HOTSPOTS ON THE IMPACT OF BOUNDARY -SPANNING BEHAVIOR ON ORGANIZATIONAL PERFORMANCE

3.1 *The Impact Of Employee Boundary-Spanning Behaviors On Organizational Performance*

When Songbo Liu and Yuhui Li (2014) studied the action mechanism of employees' boundary-spanning behavior, they found that employees' boundary-spanning behavior was conducive to enhancing the centrality of their team's internal network and thus promoting their task performance. Based on the multiple regulatory function of values, Mingming Cui et al. (2018) believed that boundary-spanning behavior positively affected the task performance of employees. Empirical research found that when employees' value of self-transcendence is strong but their value of self-improvement is weak, boundary-spanning behavior has no significant impact on task performance. However, when staff have weak value of self-transcendence and strong value of self-improvement, boundary-spanning behavior has a significant positive impact on task performance. From the perspective of knowledge management between enterprises, Yajuan Wang et al. (2013) pointed out through empirical analysis that individual boundary spanners promote inter-firm knowledge utilization efficiency and have a positive impact on performance. Laksgmi Ramarajan (2011) contradicted the boundary spanning theory. According to that theory, there is a negative correlation between the external relationship and the internal attitude of boundary spanners. This study found that the contact between boundary-spanning staff and other members of the organization will affect the attitude of cross-boundary staff towards work and organization, the attractiveness of the job and the confidence of employees in the organization, which in turn affect organizational performance, But the influence of

boundary-spanning contact on external relations and on internal attitudes is similar in direction.

It can be seen that there are two main motivations for employees' boundary-spanning behavior. Firstly, employees need to gain more knowledge, improve their skills and search for innovations in order to better finish one's own or organization's work. Secondly, highlight and improve their status and influence in the team or organization. When employees carry out boundary-spanning activities to obtain dual information and resources, they also have to face the dual pressure of internal and external environment. Therefore, the results brought by employees' boundary-spanning activities are also bidirectional, that is, they will bring both positive and negative impact to organizational performance.

3.2 *Influence Of Leaders' Boundary-Spanning Behavior On Organizational Performance*

From the perspective of global boundary-spanning learning, Michael J.D. Roberts (2017) regarded boundary-spanning behavior as a triangular scaffold activity. Leaders of cross-border were unique in that they met three conditions (ability, continuous will and opportunity), allowing them to acquire knowledge from internal organization and external environment. Dali Zhang and Yuhui Ge (2016) pointed out that the boundary-spanning behavior of senior executives has a positive impact on team learning and enterprise innovation performance. Taking China's listed private enterprises as samples, Houyong Tao et al. (2016) conducted an empirical research and found that the wider the cross-border scope of the identity of senior executives is, the more unfavorable it is for the growth of private enterprises while the higher the cross-border level is, the more favorable it is for the growth of enterprises. From the perspective of knowledge management, Meng Song et al. (2017) found that leaders' boundary-spanning behavior has a positive impact on team innovation, which is regulated by the quality of knowledge sharing among team members and the quality of team communication. Based on the research and test of boundary-spanning behavior of NPD project leaders, Sébastien Brion et al. (2012), found that the ability of leaders to complete cross-border activities depends on the characteristics of their personal network -- structural holes, bond strength, vertical and horizontal channels, and obtaining support and scanning thoughts is the biggest influence of boundary-spanning leadership on organizational performance.

Leadership boundary spanning is to acquire external knowledge or get material support with a certain understanding of the organization, so as to obtain external resources and support, improve internal defects of the organization, optimize and improve the organization's information structure, which has a positive impact on organizational performance. However, organizational performance is regulated and

restricted by boundary-spanning behavior in many aspects, and the effectiveness of cross-border activities should be considered, such as cost, effectiveness of cross-border activities and absorptive capacity of organization personnel. Cost refers to the tradeoff of organizational costs of cross-border activities. Leadership boundary spanning cannot blindly pursue cross-border scope to increase direct political costs. Besides, cross-domain knowledge integration needs to be promoted and integrated constantly in the organization, which is also a big organizational cost. The effectiveness of cross-border activities is to examine the knowledge ability, absorption and transformation ability, status and interpersonal network of boundary-spanning leaders. Leadership boundary spanning is a conduit to facilitate information flows and group relationships. Besides, it also needs to enable other individuals to integrate new knowledge practices, acquire, understand, and apply cross-boundary knowledge and skills.

3.3 The Impact Of Team'S Boundary-Spanning Behavior On Organizational Performance

Aparna Joshi et al. (2009) studied how the antebellum factors at multiple levels simultaneously affect the boundary-spanning behavior of the team, and the extent to which the attributes of the team and its members reflect the organizational performance in the cross-boundary activities. Based on the group attachment theory, Sujin Lee et al. (2016) expounded the antecedents related to the boundary-spanning behavior from the perspective of members' relationship orientation (group attachment anxiety and avoidance) and the psychological mechanism related to the boundary-spanning behavior (perception of inter-group competition and understanding of the external image of the project team). The research results of Xiaobin Feng (2012) showed that the three sub-dimensions (embassador behavior, coordination behavior and detection behavior) of boundary-spanning behavior of r&d team have a significant positive impact on innovation performance, and task complexity regulated the relationship between boundary-spanning behavior and innovation performance. Jianzhong Xu and Xiaoyu Qu (2014) found that there is a significant positive correlation between the three dimensions of team boundary-spanning behavior and team creativity, in which knowledge trading plays a mediating role. Low uncertainty avoidance can strengthen the positive correlation between team boundary-spanning behavior and team creativity. Qinghong Yuan and Hualei Zhang et al. (2015) found that research and development team cross-border activities have an inverted U-shaped effect on team reflection and team innovation performance. From the perspective of boundary management, Guanfeng Shi and Ping Xue et al. (2013) found that extroverted boundary management can predict team cohesion and performance, and the

resources that extroverted boundary management wins for the team from the outside can only be effectively allocated and integrated through internal processes, so as to improve team survival and organizational performance.

It can be seen that scholars at home and abroad tend to study what factors affect team boundary-spanning behavior and the influence mechanism of team boundary-spanning behavior on creativity or performance. The factors that influence the boundary-spanning behavior of the team may be as follows: (1) the degree of group attachment of members, the diversity of individual functions of members, the tenure and diversity of member organizations, the support of team leaders, vertical authorized leadership and shared authorized leadership; (2) Team low uncertainty avoidance, inter-team task dependence, the development stage of the team, task complexity; (3) The uncertainty of organizational environment, organizational conflict, etc. The impact of team boundary-spanning behavior on organizational performance is not a simple linear relationship. It is not only influenced by the leading factors of team boundary-spanning behavior, but also mediated by knowledge trading, team reflection and other factors.

4 CONCLUSION AND FUTURE OUTLOOK

Based on the keyword co-occurrence knowledge map made by CiteSpace and combined with the review of the research on the impact of boundary-spanning behavior on organizational performance from 2009 to 2018, this paper focused on sorting out the impact of boundary-spanning behavior of three types of cross-border subjects on organizational performance at individual and team levels, namely, employees' boundary spanning, leaders' boundary spanning and team's boundary spanning. According to the review of the above research hotspots, the following conclusions can be drawn by comparing the review of the three types of boundary spanning subjects. The main concepts and definitions are as shown in [Table 1](#). (1) Employees' boundary-spanning behavior is mainly affected by leadership style, employees' value, and group dependence. In addition, it may also be affected by teams, organizations, customers, etc. And boundary-spanning motivations of employees are mainly from the perspective of individuals, such as acquiring knowledge, improving personal skills and searching for innovation points, so as to complete or optimize work tasks. Most studies have shown that it has a direct or indirect positive impact on organizational performance, and it may also have a negative impact on organizational performance due to the conflicts between individual employees among groups.

(2) Leaders' boundary-spanning behavior is mainly affected by leaders' skills, structural holes and organizational environment. And it is mainly for obtaining external resources and support as well as

optimizing and perfecting the organization information structure. Most studies have shown that boundary-spanning behavior of leaders has a positive impact on organizational performance, but it could also have a negative impact on the organization's performance when leaders' boundary-spanning behavior is too extensive and it leads to the increase of cost.

(3) Team's boundary-spanning behavior is mainly affected by team (team composition, team leadership, tasks and goals, etc.) and organization (organizational culture, organizational change, organizational environment, etc.). The main purpose of team

boundary-spanning behavior is to enable the team to obtain external support, resources and information as well as detect the trend of market and technological innovation, so as to improve organizational performance. The present study shows that team's boundary-spanning behavior mainly has a positive impact on organizational performance, and it may also have an inverted U-shaped impact on organizational performance because team boundary-spanning behavior is too open, leading to transparent boundaries and excessive information or resources searched and difficult to be utilized.

Table 1 A comparative study of employees', leaders' and team's boundary-spanning behavior

	Motivation	Antecedent factors	Dimension	Mediating regulation	Impact on organizational performance
Employees' boundary-spanning behavior	Acquire knowledge, improve and search innovations	Leadership style, employee skills values and degree of dependence for group	Scan and coordinate	Knowledge management	Direct effect (positive effect, negative effect), indirect effect
Leaders' boundary-spanning behavior	Seek external knowledge or material support	Leaders' skills, structural hole or Organizational environment	Ambassador behavior, task coordination and task detection behavior	Team learning, team knowledge and sharing communication	Direct effect (positive effect, negative effect)
Team's boundary-spanning behavior	Get external support, resources information, detect environmental dynamics	Team aspects: composition, tasks and goals, and Organizational organizational environment	team leadership, aspects: culture, change, organizational environment	Ambassador behavior, task coordination and task detection behavior	Knowledge trading, team learning, social networking shaped), and information technology effects, Direct effects (positive effects, inverted U-shaped), indirect regulatory effects

Therefore, it can be seen that the motivation, influencing factors, regulating mediators and influences on organizational performance of team boundary-spanning behavior is much more complex than individual boundary-spanning behavior. Team boundary-spanning behavior is not only the sum of leaders' and employees' boundary-spanning behavior, but also it needs to identify and select the scope of subjects and objects of boundary-spanning behavior, which should be combined with team characteristics and organizational characteristics. Most of the existing research in the field of boundary-spanning behavior in China focused on a single level. No domestic scholars had studied the influence of boundary-spanning behavior on organizational performance from the perspective of multi-layers of boundary-spanning subjects. Moreover, there was few research on the boundary-spanning behavior of individual layer, and the influence mechanism of the boundary-spanning behavior of individual layer had not been discussed in detail and comprehensively. Further research on the above issues is needed in the field of "boundary-spanning behavior" in the future.

DATA AVAILABILITY

ACADEMIC PUBLISHING HOUSE

The data used to support the findings of this study are included within the article.

CONFLICT OF INTERESTS

The authors declare that there is no conflict of interests regarding the publication of this paper.

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The Relationship between Rank before and after Matrix Operation in Linear Algebra

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Abstract: By using the equation expression of matrix sum and matrix product rank in block matrix rank, it can point the related inequalities of the matrix sum and product operation rank as the conclusion. For the promotion of the equation, it can derive to the related equations and inequalities between the rank in the block matrix and the rank in the matrix inequality.

Keywords: Matrix; Rank; Polynomial; Block Matrix

1. INTRODUCTION

Matrix theory is an important part of linear algebra. The rank of a matrix is an important numerical parameter of the matrix, which has very important theoretical significance and application value. The addition and multiplication of matrices are two very significant operations of matrices. In general, linear algebra textbooks, there are three rank inequalities of matrices. They reflect the relationship between the sum of matrix, the rank of product and the original matrix. Besides, it uses the relationship between the rank of the vector group and the rank of the matrix to prove it. This paper mainly discusses the relationship between the rank of the matrix before and after the operation and briefly summarizes the equations and inequalities of some matrix ranks.

Definition 1[1]: If the matrix is $m \times n$. The order of the highest-order non-zero sub-formula of A is called the rank of the matrix A . And record it as $rank A$.

The following basic properties can be established by the definition of matrix:

(1) $r(A) \leq \min\{m, n\}$. That is, the rank of the matrix is not greater than the number of columns of the matrix or the number of rows of the matrix.

(2) $r(A) = r$, if and only if there is a non-zero sub-expression of order r in the A , and any sub-expression of order (if any) is all zero.

(3) $r(A) = r(A^T)$

(4) For any constant $k \neq 0$, there is $r(kA) = rank A$.

(5) $r(A) = 0 \Leftrightarrow A = 0$

(6) $r(A^*) \leq r(A)$

Definition 2[1]: The number of vectors contained in the extremely irrelevant group of a vector group is called the rank of the vector group.

The rank of a vector group has the following basic properties:

(1) The rank of the vector group is greater than or equal to the rank of any one of its partial groups;

(2) If a vector group $\alpha_1, \alpha_2, \dots, \alpha_s$ can be expressed linearly by another vector group $\beta_1, \beta_2, \dots, \beta_t$, the rank of the vector group $\{\alpha_1, \alpha_2, \dots, \alpha_s\}$ does not exceed the rank of the vector group $\{\beta_1, \beta_2, \dots, \beta_t\}$;

Definition 3[1]: The rank of the row vector group of a matrix is called the row rank of the matrix; the rank of the column vector group is called the column rank of the matrix through the definition of the rank of the matrix and some basic properties. Linear algebra textbooks have proved that the rank of a matrix is equal to the column rank of the matrix and equal to the column rank of the matrix. And after matrix addition and multiplication operations, the corresponding rank satisfies the following four basic inequalities:

(1) $r(A + B) \leq r(A) + r(B)$

(2) $r(A) - r(B) \leq r(A - B) \leq r(A) + r(B)$

(3) $r(AB) \leq r(A); r(AB) \leq r(B)$

(4) $r(AB) \geq r(A) + r(B) - n$; n is the number of columns in the matrix A

2. THE NATURE OF THE RANK IN THE SUM AND PRODUCT OF MATRICES

Lemma 1[2]: Suppose that A is a matrix of order $n \times n$, remember $N(A) = \{X \in R^n | AX = 0\}$, then $N(A)$ is a linear space, and its dimension is equal to $n - r(A)$.

Theorem 1[2]: Suppose A, B it is a matrix of the same type, then $r(A + B) \leq r(A) + r(B)$

Proof: Suppose, $A = \{\alpha_1, \alpha_2, \dots, \alpha_n\}$ $B = \{\beta_1, \beta_2, \dots, \beta_n\}$

Then $A + B = \{\alpha_1 + \beta_1, \alpha_2 + \beta_2, \dots, \alpha_n + \beta_n\}$,

So $r\{\alpha_1 + \beta_1, \alpha_2 + \beta_2, \dots, \alpha_n + \beta_n\} \leq$

$r\{\alpha_1, \alpha_2, \dots, \alpha_n, \beta_1, \beta_2, \dots, \beta_n\} \leq$

$r\{\alpha_1, \alpha_2, \dots, \alpha_n\} + r\{\beta_1, \beta_2, \dots, \beta_n\}$

$\Rightarrow r(A + B) \leq r(A) + r(B)$

Theorem 2[2]: Suppose A is matrix $P^{n \times n}$, B is matrix $P^{n \times k}$, then $r(AB) \leq \min\{r(A), r(B)\}$

Proof: Suppose $A = \{\alpha_1, \alpha_2, \dots, \alpha_n\}$ $B = (b_{ij})_{n \times k}$, then

$AB = \{\sum_{i=1}^n b_{i1} \alpha_i, \sum_{i=1}^n b_{i2} \alpha_i, \dots, \sum_{i=1}^n b_{ik} \alpha_i\}$ then,

the column vector group of AB can be expressed linearly by the column vector group of A . Thus, $r(AB) \leq r(A)$, in the same way, the row vector group of AB can be linearly represented by the row vector group B , thus $r(AB) \leq r(B)$. So $r(AB) \leq \min\{r(A), r(B)\}$

Theorem 3[2]: Suppose A is a matrix of order $P^{m \times n}$, and B is a matrix of order $P^{n \times t}$, then there is $r(AB) \geq r(A) + r(B) - n$, Especially, when $AB = 0$, there

$sr(A) + r(B) \leq n$.

Proof: because of $r\begin{pmatrix} 0 & A \\ B & E_n \end{pmatrix} = r(AB) + n$ and

because of $r\begin{pmatrix} 0 & A \\ B & E_n \end{pmatrix} \geq r(A) + r(B)$

So there is $r(AB) + n \geq r(A) + r(B)$, namely $r(AB) \geq r(A) + r(B) - n$.

Lemma 2[3]: 1. $r(A) = r, A$ it can be transformed into $\begin{pmatrix} E_r & 0 \\ 0 & 0 \end{pmatrix}$, there is an invertible matrix $P, Q, A =$

$$P \begin{pmatrix} E_r & 0 \\ 0 & 0 \end{pmatrix} Q \text{ or } PAQ = \begin{pmatrix} E_r & 0 \\ 0 & 0 \end{pmatrix}$$

2. For any two matrices A and B on the number field P , there are

$$r(AB) \leq r(A) + r(B), r\begin{pmatrix} A \\ B \end{pmatrix} \leq r(A) + r(B).$$

From Lemma 2, we can prove

Theorem 4[3]: $r(ABC) \geq r(AB) + r(BC) - r(B)$.

Proof: Suppose $r(B) = r$, then there is an invertible matrix P, Q , makes $B = P \begin{pmatrix} E_r & 0 \\ 0 & 0 \end{pmatrix} Q$

$$\text{let } P = \begin{pmatrix} M & S \\ N & T \end{pmatrix}, Q = \begin{pmatrix} N & 0 \\ T & 0 \end{pmatrix}. \text{ Then } B = \begin{pmatrix} M & S \\ N & T \end{pmatrix} \begin{pmatrix} E_r & 0 \\ 0 & 0 \end{pmatrix}$$

$$\begin{pmatrix} N & 0 \\ T & 0 \end{pmatrix} = MN. \text{ Then } B = MN. \text{ So } r(B) = r\begin{pmatrix} M & S \\ N & T \end{pmatrix} = r(MN). \text{ So: } r(ABC) = r(AMNC) = r(AM) + r(NC) - r$$

$$\geq r(AMN) + r(MNC) - r = r(AB) + r(BC) - r(B).$$

$Sor(ABC) \geq r(AB) + r(BC) - r(B)$.

3. THE NATURE OF THE RANK IN THE BLOCK MATRIX

We can not only use the general matrix to discuss the relationship of matrix rank, but also use the rank of the block matrix to express the relationship between the sum and the rank before and after the product operation.

Theorem 5[4]: Suppose $A \in M_{m \times n}, B \in M_{s \times k}, C \in M_{m \times r}$. then:

Set up $A \in M_{m \times n}, B \in M_{s \times k}, C \in M_{m \times r}$. then

$$(I) \quad r\begin{pmatrix} A & B \\ 0 & C \end{pmatrix} \geq r(A) + r(C); (II) \quad r\begin{pmatrix} A & 0 \\ 0 & B \end{pmatrix} = r(A) + r(B)$$

Theorem 6[4]: If $A \in M_{n(R)}$ is a non-singular matrix, then:

$$rB^{-1} \begin{pmatrix} i_1, i_2 \dots i_s \\ j_1, j_2 \dots j_p \end{pmatrix} = rB \begin{pmatrix} j_{s+1} \dots j_n \\ i_{p+1}, \dots i_n \end{pmatrix} + s + p - n$$

Among them $1, 2, \dots, n$ are two permutations of $i_1, i_2 \dots i_n; j_1, j_2 \dots j_n$ and $i_1 < i_2 < \dots < i_s; i_{s+1} < \dots < i_n; j_1 < j_2 < \dots < j_p; j_{p+1} < \dots < j_n$.

In addition, there are two exercises in advanced algebra:

Proposition 1: let A is a matrix of $P^{n \times n}$ order and $A^2 = E \Leftrightarrow r(E - A) + r(E + A) = n$

Proposition 2: Let A is the matrix of $P^{m \times n}$ order and $A^2 = A \Leftrightarrow r(A) + r(E - A) = n$.

For these two exercises, we first give prove.

Proposition 1: Proof: \Rightarrow Because of $A^2 = E$

So $(E - A)(E + A) = E(E + A) - A(E + A) = E + A - A - A^2 = E - A^2 = 0$

then $(E - A)(E + A) = 0$, 则 $r(E - A) + r(E + A) \leq n$

And $sor(E - A) + r(E + A) \geq r(E - A + E + A) = r(2E) = n$

$Sor(E - A) + r(E + A) = n$

" \Leftarrow " to prove $A^2 = E$, just prove $A^2 - E = 0$, just prover $(A^2 - E) = 0$

$$\begin{pmatrix} E & E \\ 0 & E \end{pmatrix} \begin{pmatrix} E - A & 0 \\ 0 & E + A \end{pmatrix} = \begin{pmatrix} E - A & E + A \\ 0 & E + A \end{pmatrix}$$

$$\text{So } \begin{pmatrix} E - A & 0 \\ 0 & E + A \end{pmatrix} \rightarrow \begin{pmatrix} E - A & E + A \\ 0 & E + A \end{pmatrix} \rightarrow \begin{pmatrix} E - A & 2E \\ 0 & E + A \end{pmatrix}$$

And because

$$\text{of } \begin{pmatrix} E - A & 2E \\ 0 & E + A \end{pmatrix} \begin{pmatrix} E & 0 \\ -\frac{1}{2}(E - A) & E \end{pmatrix} = \begin{pmatrix} 0 & 2E \\ -\frac{1}{2}(E + A)(E - A) & E + A \end{pmatrix}$$

$$\text{So } \begin{pmatrix} E - A & 2E \\ 0 & E + A \end{pmatrix} \rightarrow \begin{pmatrix} 0 & 2E \\ -\frac{1}{2}(E + A)(E - A) & E + A \end{pmatrix} \rightarrow \begin{pmatrix} 0 & 2E \\ -\frac{1}{2}(E - A^2) & 0 \end{pmatrix}$$

$$\text{Then } \begin{pmatrix} 0 & 2E \\ -\frac{1}{2}(E - A^2) & 0 \end{pmatrix} \rightarrow \begin{pmatrix} 0 & 2E \\ -\frac{1}{2}(E - A^2) & 0 \end{pmatrix} \rightarrow \begin{pmatrix} 0 & 2E \\ 0 & E + A \end{pmatrix}$$

$$\text{So } r\begin{pmatrix} E - A & 0 \\ 0 & E + A \end{pmatrix} = r\begin{pmatrix} 0 & E \\ E - A^2 & 0 \end{pmatrix}$$

$$\text{So } r(E - A) + r(E + A) = r(E) + r(E - A^2)$$

$$\text{then } r(E - A) + r(E + A) = n$$

$$\Rightarrow r(E - A^2) = 0. \text{ So } A^2 = E$$

Proposition 2: Proof: " \Rightarrow " because of $A^2 = A \Rightarrow A^2 - A = 0 \Rightarrow A(E - A) = 0$.

$r(A) + r(E - A) \leq n$.

And because $r(A) + r(E - A) \geq r(A + E - A) = r(E) = n$, then $r(A) + r(E - A) \geq n$.

$$r(A) + r(E - A) = n.$$

$$" \Leftarrow " \begin{pmatrix} A & 0 \\ 0 & E - A \end{pmatrix} \rightarrow \begin{pmatrix} A & A \\ 0 & E - A \end{pmatrix} \rightarrow \begin{pmatrix} A & A \\ A & E \end{pmatrix} \rightarrow \begin{pmatrix} A - A^2 & 0 \\ A & E \end{pmatrix}$$

$$\text{And because } \begin{pmatrix} A - A^2 & 0 \\ A & E \end{pmatrix} \rightarrow \begin{pmatrix} A - A^2 & 0 \\ 0 & E \end{pmatrix}$$

$$\text{So } r\begin{pmatrix} A & 0 \\ 0 & E - A \end{pmatrix} = r\begin{pmatrix} A - A^2 & 0 \\ 0 & E \end{pmatrix} = r(A - A^2) + r(E) = n$$

$$Sor(A - A^2) = 0 \Leftrightarrow A - A^2 = 0. \text{ That is } A = A^2.$$

4. THE RELATED PROMOTION PROPERTIES OF MATRIX RANK

To promote from concrete to abstract, if we replace some of the digital information in $B^2 = E$ or $B^2 = B$

with characters, we also have:

Theorem 7[5]: Suppose that B is a square matrix of order n , b_1, b_2, \dots, b_r are not equal to each other, The necessary and sufficient condition of $(B - b_1E)(B - b_2E) \cdots (B - b_rE) = 0$ is: for any $s_1, s_2, \dots, s_t \in N$, there is $r(B - b_1E)^{s_1} + r(B - b_2E)^{s_2} + \cdots + r(B - b_rE)^{s_t} = (r - 1)n$.

In the theorem, take $r = 2$, and take $a_1 = -1, a_2 = 1$, then $a_1 = 0, a_2 = 1$, then:

Corollary 7.1[6]: Let B be a matrix of order $P^{n \times n}$ and $B^2 = E$, then $r(B + E)^s + r(B - E)^i = n$, where s, i is any natural number.

Corollary 7.2[6]: Let B be the matrix of $P^{m \times n}$ and $B^2 = B$, then $r(B^s) + r(B - E)^i = n$, where s, i is any natural number.

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Quantum genetic Algorithm and simulation examples

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Abstract: Quantum Genetic Algorithm (QGA) is the combination of Quantum computing and Genetic Algorithm (GA). Quantum genetic algorithm (QGA) introduces the expression of quantum state vector in quantum computation into the genetic algorithm. In the paper, using quantum logic gates to realize chromosome evolution. The result is better than the conventional genetic algorithm.

Keywords: Quantum Genetic Algorithm; system error; Genetic Algorithm

1. INTRODUCTION

Quantum genetic algorithm [1] is based on the quantum state vector representation. Quantum bit probability amplitude representation is applied to chromosome coding. One chromosome can express the superposition of many states, and the update operation of chromosome can be realized by using quantum logic gate, thus achieving the optimization solution of the target. In the quantum genetic algorithm QGA, chromosomes are represented by qubits. Quantum bits are in two basic states except "0" or "1". It can also be in any linear superposition state of "0" and "1", that is, "0" and "1" exist at the same time with a certain probability, and the "0" state or "1" state can be presented by measurement.

The fundamental state of a qubit can be expressed as $|0\rangle$ and $|1\rangle$, The superposition state of a qubit $|\psi\rangle$ can be expressed as:

$$|\psi\rangle = \alpha|0\rangle + \beta|1\rangle \quad (1)$$

Where α and β can be complex Numbers, representing the probability amplitude of the corresponding state, and satisfying the normalization condition $|\alpha|^2 + |\beta|^2 = 1$, $|\alpha|^2$ is the probability of $|0\rangle$, $|\beta|^2$ is the probability of $|1\rangle$, the probability amplitude of a chromosome containing m genes can be expressed as:

$$q_j^t = \begin{bmatrix} \alpha_{11} & \alpha_{11} & \dots & \alpha_{1k} & \alpha_{21} & \alpha_{22} & \dots & \alpha_{2k} & \dots & \alpha_{m1} & \alpha_{m2} & \dots & \alpha_{mk} \\ \beta_{11} & \beta_{11} & \dots & \beta_{1k} & \beta_{21} & \beta_{22} & \dots & \beta_{2k} & \dots & \beta_{m1} & \beta_{m2} & \dots & \beta_{mk} \end{bmatrix} \quad (2)$$

Where, q_j^t represents the chromosome of the t -th and j -th individuals, m represents the number of genes in chromosomes, and k represents the qubit coding book of each gene[2].

2. QUANTUM GENETIC ALGORITHM PROCESS

Based on the representation method of qubits and the superposition principle of states in quantum mechanics, the flow of quantum genetic algorithm is as follows:

(1) Initialize the population

Initialize all genes $(\alpha_{ij}, \beta_{ij})$ on the entire chromosome of a population $P(t) = \{p'_1, p'_2, \dots, p'_n\}$ of n individuals are initialized to $\left(\sqrt{\frac{1}{2}}, \sqrt{\frac{1}{2}}\right)$. That is,

what a chromosome expresses is an equal probability superposition of all its possible states. Where, p_j^t ($j = 1, 2, \dots, n$) is the j -th individual of the t -generation in the population, q_j^t is expressed as Formula (2).

(2) Measurement of individuals in the population:

A measurement of an individual in the initial population results in a set of determined $R(t) = \{\gamma'_1, \gamma'_2, \dots, \gamma'_n\}$, where γ_j^t ($j = 1, 2, \dots, n$) is the measured value of the j -th individual in the t -generation population, which is expressed as a binary string of length m , in which each digit is 0 or 1 is measured according to the probability $|\alpha_{ij}|^2$ or $|\beta_{ij}|^2$ of quantum bits. The measurement process is as follows: a number between 0 and 1 is randomly generated; if it is greater than the square of the probability amplitude, the measurement result is valued at 1; otherwise, it is valued at 0.

(3) Evaluate everyone in $R(t)$: Evaluate everyone in $R(t)$ with the adaptive value evaluation function, and retain the optimal individual in this generation. If a satisfactory solution is obtained, the algorithm terminates; otherwise. Transfer to (4) continue.

(4) Update $P(t)$ with the appropriate quantum gate $U(t)$;

(5) Genetic algebra $t = t + 1$, the algorithm is transferred to (2) to continue.

Quantum genetic algorithm (QGA) uses quantum gates to act on the probability amplitude of quantum states to maintain population diversity. Therefore, the updating method of quantum gates is the key of QGA. According to the characteristics of quantum genetic algorithm, it is more suitable to choose quantum revolving door. Quantum revolving doors G can be expressed as

$$G = \begin{pmatrix} \cos \theta & -\sin \theta \\ \sin \theta & \cos \theta \end{pmatrix} \quad (3)$$

θ is the rotation Angle of the quantum gate, and its value is:

$$\theta = k * S(\alpha_i, \beta_i) \quad (4)$$

The K coefficient can be adjusted between 0.1π and

0.005π: the function $S(\alpha_i, \beta_i)$ is used to make the algorithm search in the direction of the optimal solution. In the table 1, α_1, β_1 and α_2, β_2 are the probability amplitudes of the optimal solution and the current solution, $d_i = \alpha_i * \beta_i, \zeta_i = \arctan(\beta_i / \alpha_i), i = 1, 2$. When d_1 and d_2 are both greater than 0, it means that both the current solution and the best solution searched are in the first or third quadrant. When $|\zeta_1| > |\zeta_2|$, it means that the current solution should rotate counterclockwise. It has a value of +1, or negative 1. Similarly, three other cases can be deduced. In this way, the third step in the quantum genetic

Table 1 Query table for function $S(\alpha_i, \beta_i)$

$S(\alpha_i, \beta_i)$			
>0	>0	$ \zeta_1 > \zeta_2 $	$ \zeta_1 > \zeta_2 $
True	True	+1	-1
True	False	+1	+1
False	True	-1	-1
False	False	-1	+1

Where, superscript t is the evolutionary algebra, $G(t)$ is the quantum gate of the t generation, p_j^t is the probability amplitude of an individual in the t generation, p_j^{t+1} is the probability amplitude of the corresponding individual in the $t + 1$ generation, and p_j^t and p_j^{t+1} are expressed as formula (2).

3. QUANTUM GENETIC ALGORITHM IMPROVED MODEL

It can be seen from the QGA algorithm that when the optimal individual of the current generation of QGA is a local extremum, the algorithm is difficult to get out of it and falls into the local extremum, resulting in premature convergence.

Using the following method to improve the algorithm flow of QGA, the improved QGA algorithm can be obtained:

- (1) Adopt the optimal retention mechanism to ensure the global convergence of the algorithm;
- (2) Replace the rotation Angle of the quantum revolving door with the optimal individual retained by the optimal retention mechanism QGA uses the current optimal individual to update the quantum gate, so as to accelerate the convergence speed of the algorithm;
- (3) When the algorithm has no change in the optimal individual in successive generations, it indicates that the algorithm falls into the local extreme value, and measures should be taken to make it break out of the local extreme value. At this time, catastrophic operation is carried out on the population, and a large disturbance is imposed on the population in the evolutionary process to make it break away from the local optimal point and start a new search. The specific catastrophic operation is to retain only the optimal value and regenerate the remaining individuals.

The improved QGA execution algorithm is as follows:

algorithm process is further described as the probability amplitude of acting on all individuals in the population by using quantum revolving door, which updates $P(t)$ by using quantum revolving. In this way, the third step in the quantum genetic algorithm process is further described as the probability amplitude of acting on all individuals in the population by using quantum revolving door, which updates $P(t)$ by using quantum revolving door $G(t)$, and can be described as:

$$p_j^{t+1} = G(t) * p_j^t \tag{5}$$

```

begin
t=0
initialize(t);
P(t) = {p'_1, p'_2, ..., p'_n};
p_j = [a'_1, a'_2, ..., a'_m;
b'_1, b'_2, ..., b'_m];
a_i, b_i = 1/√2, (i = 1, 2, ..., m);
makeR(t) using P(t);
evaluateR(t);
store the best solution;
while(Not termination)do;
begin
t=t+1
makeR(t) using P(t);
evaluate R(t);
update P(t) using quantum rotation gates U(t);
therta=g(a_i, b_i)*deta_therta;
store the best solution;
while (Catastrophe Condition=True)do
begin
Population Catastrophe; /
end
end
end
end

```

Multiple test examples show that the improved QGA is superior to the standard GA and QGA in terms of convergence speed, global optimization ability and optimization efficiency. The improved QGA is adopted to solve the following problems.

4. QUANTUM GENETIC ALGORITHM IS USED TO SOLVE THE SYSTEM ERROR COMPENSATION PARAMETERS COMBINATION

4.1 Determination of error parameter combination

(1) Distance error

Distance error and static error, velocity error,

atmospheric refraction error, velocity error is related to the velocity error and atmospheric refraction error is generally based on experience value add, admission to the velocity error coefficient and tracking system, related equipment, which is associated with the type of guidance station, for a certain type of radar, it is a fixed value, thus can also add velocity error rate. According to the above analysis, only static error R_0 is considered as the error parameter in the distance.

(2) Azimuth error

Azimuth error and static error of Angle and distance error, levelness error, orthogonality, photoelectric shaft error and angular velocity error, servo system back to the poor, including distance are generally based on experience value add Angle error, the angular velocity error, return difference servo system, orthogonality error, photoelectric shaft to one set of radar basic constant can also add, so considering the static error and levelness error β_0 in azimuth.

(3) High and low Angle error

High and low Angle error and static error of Angle and distance error, levelness, atmospheric refraction error and angular velocity error, servo system back to the poor, including atmospheric refraction error range are generally based on experience value add Angle error, the angular velocity error, poor servo system back to one set of radar basic unchanged can also add, so in the high and low Angle consider static error and levelness error. To sum up, the error parameter combination of two radar types is

$(R_{01}, \varepsilon_{01}, \beta_{01}, \theta_{m1}, \beta_{m1}, R_{02}, \varepsilon_{02}, \beta_{02}, \theta_{m2}, \beta_{m2})$.

4.2 Determination of error parameter combination

For a given combination of error parameters $(R_{01}, \varepsilon_{01}, \beta_{01}, \theta_{m1}, \beta_{m1}, R_{02}, \varepsilon_{02}, \beta_{02}, \theta_{m2}, \beta_{m2})$.., the track data of station 1 and station 2 are firstly pre-compensated respectively (the compensation method is described in the following section). Then, the target coordinates of station 2 are converted to station 1 coordinates, and the errors between the two groups of data are counted:

$$\Delta = \frac{1}{n} \sum_1^n [(x_1 - x_2)^2 + (y_1 - y_2)^2 + (z_1 - z_2)^2] \quad (6)$$

Where n is the length of track data, and x, y and z are the target rectangular coordinates. The error is actually the average deviation of two tracks after compensation. The fitness function of the error parameter combination (individual) is defined as:

$$\eta = \frac{1}{\Delta} \quad (7)$$

4.3 Parameter selection

The parameters of the quantum genetic algorithm are set as follows: the population size is 30, the number of genes on chromosomes is 10, and the number of qubits is 80. The quantum-gate lookup table is shown in Table 3.4, terminating algebra 1000. According to the process of the quantum genetic algorithm, the optimal solution can be obtained quickly. The experimental results show that the quantum genetic algorithm can be used to solve the optimization problem of nonlinear functions very well with its powerful searching ability. conclusion

After error evaluation of a certain type of radar is a radar networking presses for solution of a problem, in this chapter on the basis of absorbing and summarizing the existing theory and method, carried on the thorough analysis of the relevant model was set up, and put forward the views with quantum genetic algorithm to solve the error, the method of a live-fire school fly data of experimental simulation, this method is feasible and can satisfy the engineering needs.

5. CONCLUSION

After error evaluation of a certain type of radar is a radar networking presses for solution of a problem, in this chapter on the basis of absorbing and summarizing the existing theory and method, carried on the thorough analysis of the relevant model was set up, and put forward the views with quantum genetic algorithm to solve the error, the method of a live-fire school fly data of experimental simulation, this method is feasible and can satisfy the engineering needs.

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Research on Voltage Series Negative Feedback Based on Theory, Simulation and Experiment

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Abstracts: In order to stimulate students' motivation to learn independently and to cultivate a rigorous scientific style, the negative feedback of the voltage-series was studied by using Multisim 14.0 software and experimental equipment simultaneously. The influence of negative feedback on the dynamic parameters of amplifier circuit was analyzed, and the cause of error was explored in comparison with the theoretical results. The practice shows that this method is conducive to deepen the students' mastery of theoretical knowledge, improve the ability to analyze and solve problems, and lay a solid foundation for the cultivation of innovation ability and engineering quality.

Keywords: Multisim Simulation; experimental test; theoretical analysis; engineering quality

1. INTRODUCTION

Analog electronic technology is a basic core course for electrical majors in colleges and universities. It has strong engineering and practicality, and plays a very important role in cultivating students' innovative ability and practical ability[1-2]. The nature of the course requires the consideration of approximate estimation in the qualitative analysis of the circuit, feasibility analysis in the circuit design, and the mastery of the testing methods of electronic circuits, etc[3]. Current teaching model is learned theoretical knowledge could begin the experimental teaching immediately, although this model is consistent with the original intention of combining theory with practice, However, the experimental board with fixed modules

cannot realize the flexible selection of circuit structure, and it is not easy to explore the influence of component parameter selection on circuit performance and other factors, which leads to unsatisfactory teaching effect, restricts the cultivation of students' engineering practice ability and innovation ability, and does not meet the requirements of application-oriented undergraduate talent cultivation[4-8]. The emergence of simulation software stimulates the enthusiasm of students to participate in teaching. This method is not limited by the experimental location of class hours, and it is easy to modify experimental parameters, which is helpful for students to understand and verify the theoretical analysis [9-13]. So voltage series negative feedback is used as an example in this paper. The effect of introducing negative feedback into the amplifier circuit was studied by combining the theoretical analysis and Multisim 14.0 simulation software with the experimental platform. By analyzing the coincidence between theory and practice simulation and exploring the reasons for the existence of errors, this method can mobilize the participation of students, which is conducive to the cultivation of students' engineering quality and innovation ability. The schematic diagram of the voltage series negative feedback circuit is shown in Figure 1. The circuit is a two-stage resistance-capacitance coupled amplifier circuit with independent static working points

1.1 Static operating point analysis
In the first stage amplifier circuit, U_{C1Q} can be adjusted to 6.27 V, the static working point test datas are presented as Tabel 1.

Table 1 static working point test datas by theoretic analysis

Test datas	The first stage amplifier					The second stage amplifier				
	U_{B1Q}	U_{BE1Q}	I_{B1Q}	I_{C1Q}	U_{CE1Q}	U_{B2Q}	U_{BE2Q}	I_{B2Q}	I_{C2Q}	U_{CE2Q}
	2.34 V	0.6 V	6 μ A	1.12 mA	4.55 V	2.438 V	0.7 V	8 μ A	1.15 mA	4.39 V

1.2 Dynamic analysis

(1) The amplification factor relation before and after the introduction of feedback is:

$$A_{vf} = \frac{A_v}{1+A_v F} \quad (1)$$

Where, A_v and A_{vf} are voltage amplifier multiples before and after introducing negative feedback respectively. $(1+A_v F)$ is the feedback depth. F is the feedback factor, which is expressed as:

$$F = \frac{R_5+R_6}{R_5+R_6+R_{13}} \approx 0.134 \quad (2)$$

(2) The input resistance relation before and after the introduction of feedback is^[13]:

$$R'_{if} = (1+A_v F) R'_i \quad (3)$$

Among them, R'_i and R'_{if} are input resistors at both ends of ab before and after introducing negative feedback. The input resistance of the amplifier circuit before and after the introduction of negative feedback

is respectively:

$$R_i = R_i' // (R_1 + R_W) // R_3 \quad (4)$$

$$R_{if} = (1 + A_v F) R_i' // (R_1 + R_W) // R_3 \quad (5)$$

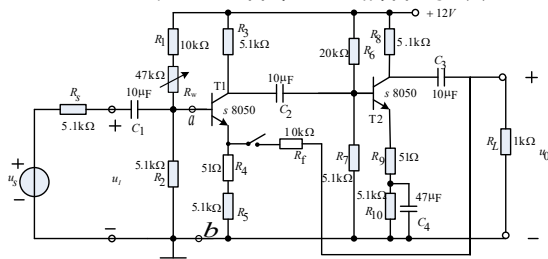


Fig. 1 Schematic diagram of voltage series negative feedback amplifier circuit

(3)The output resistance relation before and after the introduction of feedback is :

$$R_{of} = \frac{1}{(1 + A_{v0} F)} R_o \quad (6)$$

Where, A_{v0} is the voltage amplification factor without feedback and load.

Table 2 static working point test datas by simulation and experiment

	The first stage amplifier					The second stage amplifier				
	$U_{B1Q}(V)$	$U_{C1Q}(V)$	$I_{B1Q}(\mu A)$	$I_{C1Q}(mA)$	$U_{CE1Q}(V)$	$U_{B2Q}(V)$	$U_{C1Q}(V)$	$I_{B2Q}(\mu A)$	$I_{C2Q}(mA)$	$U_{CE2Q}(V)$
Simulation datas	2.34	6.27	6	1.13	4.52	2.40	6.09	8	1.16	4.27
Experiment datas	2.35	6.27	6	1.13	4.52	2.42	6.09	8	1.16	4.28

From the data analysis, the simulation datas and experimental datas of the static working point are basically the same, with a slight error compared with the theoretical analysis. The main reason for the error is that the value of the transmission junction voltage drop in the theoretical analysis and the parameters of the resistance elements and transistors in the experiment are within a certain range. Within the allowable error range, the simulation, experiment, and theoretical results are consistent, and the practice verification theory is realized.

2.2 Dynamic performance analysis

(1) Influence on voltage amplification factor

Considering the load effect of introducing feedback, the dynamic parameters of the basic amplifier circuit without feedback were tested according to Fig. 2[12]. A power with frequency of 1 kHz and output voltage of 22.66 mV was adopted. When the power was unconnected to load, the input and output waveform of

Table 3 Voltage amplification factor by simulation and experiment

	U_s (mV)	U_i (mV)	U_o (mV)	U_L (mV)	A_v	A_{vf}	A_{vf}/A_v	
							measured value	theoretical value
Simulation datas	22.66	10	819.1	67.5	81.91	6.75	12.13	11.97
Experiment datas	22.66	10	822	68.5	82.2	6.85	12	12.01

By comparing the experimental datas and simulation datas, the simulation results are basically the same as the experimental results ,and voltage series negative feedback is introduced to make the voltage

(4)The pass-band width relation before and after the introduction of feedback is :

$$f_{BWf} \approx (1 + A_v F) f_{BW} \quad (7)$$

While, f_{BW} and f_{BWf} respectively represent the frequency band width before and after the introduction of negative feedback.

2. SIMULATION AND EXPERIMENTAL STUDY OF VOLTAGE SERIES NEGATIVE FEEDBACK AMPLIFYING CIRCUIT

2.1 Static operating point analysis

Since there is no S8050 audion in the Multisim14.0 component library, the S8050 audion is self-packaged, and the simulation schematic diagram is built according to Figure 1. R1 is adjusted. When U_{C1} is 6.27V, DC Operating Point Analysis is opened and the parameters to be analyzed are selected. The static working points of the first and the second amplifier circuit are obtained as Tabel 2.

the basic amplification circuit were observed by oscilloscope, which were shown in Figure 3. Moreover, the power was kept unchanged and negative feedback was connected, the input and output waveform are shown in Figure 4. The amplification factor of the basic amplifier circuit can be calculated as:

$$A_v = \frac{U_o}{U_i} \quad (8)$$

The Voltage amplification factor with negative feedback can be calculated as:

$$A_{vf} = \frac{U_o}{U_L} \quad (9)$$

The ratio of voltage amplification before and after the introduction of negative feedback can be expressed as A_v/A_{vf} .

According to the above calculation method, voltage amplification factors by simulation and experiment are shown as Tabel 3.

amplification multiple become $\frac{1}{(1 + A_v F)}$ times of the non-feedback amplifier circuit.

(2) Influence on input resistance

In the simulation experiment, when R_s is 5.1 k Ω , U_s

was measured as 22.66mV. The input resistance calculation formulas before and after the introduction of negative feedback are respectively expressed as:

$$R_i = \frac{U_i}{U_S - U_i} \times R_s \quad (10)$$

$$R_{if} = \frac{U_{if}}{U_S - U_{if}} \times R_s \quad (11)$$

Among them, R_i is input resistance, and U_i is the input voltage, and U_S is the power with $1k\Omega$ power resistance (R_s) before negative feedback is introduced. R_{if} and U_{if} respectively represent the input resistance, the input voltage after feedback is introduced.

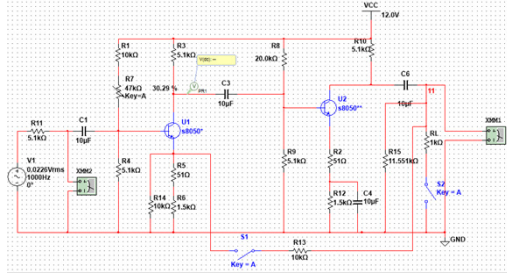


Fig. 2 Test simulation of voltage series negative feedback basic amplifier circuit

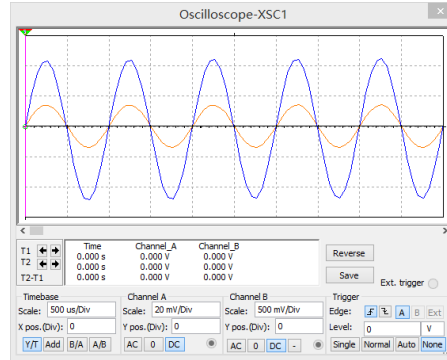


Fig. 3 Input and output voltage waveform without feedback

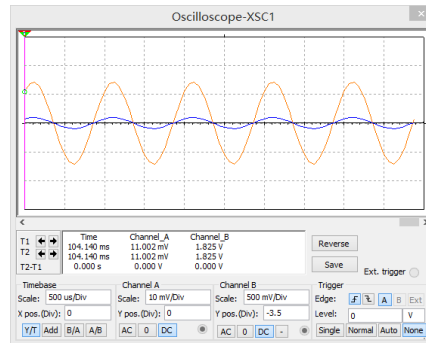


Fig. 4 Input and output voltage waveform without feedback

The input resistances in the feedback loop can be calculated by (4) and (5). Input resistances by simulation and experiment are shown as Tabel 4.

Tabel 4 Input resistances by simulation and experiment

	U_s (mV)	U_i (mV)	U_{if} (mV)	R_i (kΩ)	R_{if} (kΩ)	R'_i (kΩ)	R'_{if} (kΩ)	R_i / R'_{if}	R'_i / R_i	
									measured value	theoretical value
Simulation datas	22.66	10.01	10.08	4.036	4.0855	305	3657	1.01	11.99	11.97
Experiment datas	22.66	10.03	10.09	4.04	4.087	330	3960	1.01	12	12.01

Analysis of the input resistance datas show that the introduction of series negative feedback makes the input resistance in the feedback loop increase by a factor of $(1+A_v F)$, which has little impact on the input resistance of the amplifier circuit. The reason is that the input resistance of the amplifying circuit is equal to $R'_i / (R_1 + R_w) // R_2$, because of $R'_i \gg (R_1 + R_w) // R_2$, the input resistance of the circuit before and after the feedback is introduced is approximately equal to $(R_1 + R_w) // R_2$. (3) Influence on output resistance The power is kept unchanged in the simulation experiment. The output resistance is calculated using the following formulation:

Tabel 5 Output resistances by simulation and experiment

	U_o (mV)	U_L (mV)	U_{of} (mV)	U_{Lf} (kΩ)	R_o (kΩ)	R_{of} (kΩ)	R_o / R_{of}	
							measured value	theoretical value
Simulation datas	818.99	134.7	67.56	47.48	5.08	0.423	12	11.97
Experiment datas	822	136.8	68.5	48.2	5.01	421	11.9	12.01

$$R_o = \left(\frac{U_o}{U_L} - 1 \right) \times R_L \quad (12)$$

$$R_{of} = \left(\frac{U_{of}}{U_{Lf}} - 1 \right) \times R_L \quad (13)$$

Where, R_o is output resistance, and U_o is the output voltage without load, and U_L is the output voltage with $1k\Omega$ load (R_L) before negative feedback is introduced. R_{of} , U_{of} and U_{Lf} respectively represent the output resistance, the output voltage without load and the output voltage with $1k\Omega$ load (R_L) after feedback is introduced. According to (12) and (13), output resistances by simulation and experiment are shown as Tabel 5.

From the simulation and experimental results, it can be seen that after the voltage negative feedback is introduced, the output resistance becomes $1/(1+AV_F)$ times of the basic amplifier circuit. The resulting output resistance is slightly smaller than the theoretical value, due to the theoretical analysis of the transistor as an ideal transistor, approximate estimate of r_{CE} is infinite.

(4) Influence on frequency band width

In the simulation experiment, the frequency characteristics of the amplifying circuit were observed by using a Baud graph. The medium frequency voltage amplification factor is $A_{um}=38.27\text{ dB}$. The amplitude-frequency characteristics without feedback are shown in Figure 5. The amplitude-frequency characteristics with feedback are shown in Figure 6.

Table 6 Frequency band width by simulation and experiment

	f_L (Hz)	f_H (kHz)	f_{BW} (kHz)	f_{Lf} (Hz)	f_{Hf} (MHz)	f_{BWf} (MHz)	f_{BWf}/f_{BW}	
							measured value	theoretical value
Simulation datas	288.4	119.58	119.292	24.17	1.44	1.44	12.07	11.97
Experiment datas	235	120.8	120.56	23.6	1.456	1.456	12.07	12.01

Analyze the datas in Table 6, within the allowable range of error, the introduction of negative feedback makes the frequency band width of the amplifier circuit become $(1+A_V F)$ times of the frequency band width of the basic amplifier circuit. The reason why the upper and lower cut-off frequencies in the experimental equipmen are slightly higher than the simulation value is that the capacitance is less than its actual value in the experimental equipment.

3. CONCLUSION

By comparing the three results of theoretical analysis, Multisim simulation and experiment, it is found that the simulation datas and experimental datas are basically the same when the circuit structure is the same and the component parameters are set the same. The simulation can be used to analyze its feasibility before the actual circuit is built. The slight deviation between the experimental datas and the theoretical datas are caused by the approximate estimation of the theoretical analysis. By comparing the experimental results with theoretical analysis and exploring the causes of errors, it is helpful to cultivate students' rigorous learning attitude. Experimental data measurement is beneficial to the establishment of students' engineering concept, and the flexibility of simulation software is convenient for students to design and develop experiments independently, which lays a foundation for the cultivation of innovation ability and engineering quality

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By moving the vertical cursor, the lower limit cut-off frequency, the upper limit cut-off frequency and the band width are shown in Table 6.

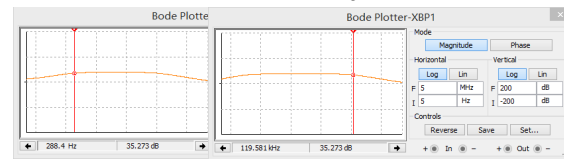


Fig. 5 Bode diagram with no feedback

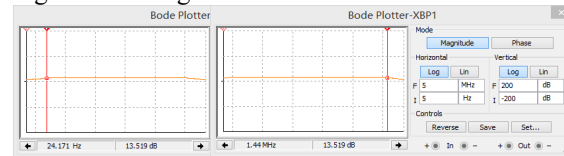


Fig. 6 Bode diagram with feedback

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Translating Verse into Verse to Regain Imagination-Illustrated by The Example of Shakespeare's Sonnets

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Abstract: Guo Moruo, a famous poet in Modern Times of China, a representative of new poem campaign. On the matter of poetry translation, he put forward the idea of translating poetry into poetry. After that, many translators regarded this translation concept as a high level of poetry translation. Shakespeare, a pioneer in the Renaissance of literature, is one of the greatest playwrights all over the world by Shakespeare. Leaving aside his recognized genius dramas, Sonnets is only one of Shakespeare's masterpieces about poetry, and also the most famous sonnets in the world. The essay has five parts, using Shakespeare's sonnet for an example, to discuss the Specific management about translating verse into verse. Based on the translation works of many translators, it analyses how to achieve the hypostasis and Parataxis in poetry translation in terms of structure and meaning, so as to achieve the translation realm of translating verse into verse. It is helpful for translators by providing more ideas for translators in translating poetry. Thus, a suitable translation can be obtained, which can reveal the style and content of the original works.

Keywords: Poetic translation; Translation method; Translation skills

1. INTRODUCTION

In this increasingly changing society, only the people of subjectivity can better develop themselves and shape the world, the same is true of translation. Translator, a mediator of languages, should considering so many aspects, especially in the translation of literary works. Translators need to identify the stylistic features of the author of the original text and transmit them to foreign readers through the author's intentions. This is particularly important for lyric poetry and prose that rely on rhythm and sound. The first and foremost concern of a translator is conveying the original style. If translating poetry into another literary form, it will certainly destroy its original style and charm. Therefore, as a famous poet and translator, Guo Mo Ruo firmly believes that translating verse into verse is the best way to regain imagination of poetry. Bian Zhi Lin, Xu Yuan Chong and other famous translators also use this translation concept to achieve the balance of hypostasis and Parataxis in translation works. Poetry has its own hundreds of forms, rhythms, rhymes.

When translating poetry, it will be a great help if the same or similar forms of poetry can be found in the target language. In this way, translators can also maintain the hypostasis of translation works to the source texts. Besides, translators should use rhetoric to make the translation as vivid, appealing, artistic and graceful as original one. Some different cultural intentions, we need to change into new different things combine the target language environment in order to express the right meaning of original text. Sometimes we have to maintaining the exotic features while avoiding readers' misunderstanding. In additional, for poetry translation, translators need to update their current language expression, on the condition of correctly understanding some ancient language expressions. In this way, the translation can be smoothed and more suitable for readers to read. A good translation is not only to reproduce the correct sentences of the original text, but also to capture the voices and sounds that the original author wants to convey and reproduce them in a way that foreign readers can understand it. It can be keenly aware of semantics, linguistic effects and the intention of the original author, and know how to present these in the translated language in the best way. Sonnet, a rigorous Lyric Style poetry are famous in Europe when Renaissance. It is popular in Italy as "sonetto" originally. Petrarch's creation made it perfect, also known as "Petrarch Style", and later spread to European countries. Shakespeare changed the format of Petrarch, consisting of three four lines and a pair of couplets, arranged in four, four, four and two lines, each with 10 iambic syllables. Characterized by vivid image, ingenious structure, strong musicality and ease of transition, it often summarizes the content in the last pair of sentences to express feelings. The themes of poetry include the life, friendship, love, and some critics of social phenomenon and so on. The article choose sonnet 18th. It is vital importance in the sonnets.

2. TRANSLATING VERSE INTO VERSE IN POETRY STRUCTURE

For thousands of years, many outstanding scholars have devoted themselves to the translation of Shakespeare's poems, contributing their own strength to the understanding of Shakespeare. From the major journals and magazines and the Internet, readers can

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learn about different versions of Shakespeare's works, and feeling the strength of different translations versions. The 18th sonnet is one of Shakespeare's famous poems. There are different opinions on the poetry is to the poet's friend or lover. Compared with the British summer, the author praises the eternal beauty of the beautiful woman, expressing his desire for love and beauty. It also expresses the main achievement of the Renaissance: humanism. The beauty of natural scenery fades easily, while the beauty of human kindly heart is immortal. At the beginning of the poem, the poet asked if he wanted to compare "you" to the beautiful summer in England. But he answered immediately that the metaphor was far from enough to describe the beauty of "you". Then, the poet tells the reason why summer was defeated by "you": there is a strong wind in summer, it is too short, and the sunshine is covered by dark clouds. Subsequently, the poem turned to think that the reason why "you" surpasses summer is because of your immortality, which just comes from the beautiful poems from "me". In this way, "You" in poetry can be a female, a male or even abstract "love" or "beauty", which can be perpetuated in poet's poems. It is from these basic perspectives that many translators have made their own Chinese versions through their profound and unique understanding of poetry and the use of different forms of writing. Many excellent translators are very accurate in dealing with the structures of poetry. They dissect the format of the poem from different angles and levels, through the delicate combination; they present the similar format of the original poem in the target language.

2.1 TRANSLATION OF PHONOLOGICAL FEATURES

So taking Shakespeare's most famous eighteenth sonnet as an example:

Shall I compare thee to a summer's day?
 Thou art more lovely and more temperate:
 Rough winds do shake the darling buds of May,
 And summer's lease hath all too short a date:
 Sometime too hot the eye of heaven shines,
 And often is his gold complexion dimm'd;
 And every fair from fair sometime declines,
 By chance or nature's changing course untrimm'd
 But thy eternal summer shall not fade
 Nor lose possession of that fair thou owest;
 Nor shall Death brag thou wander'st in his shade,
 When in eternal lines to time thou growest:
 So long as men can breathe or eyes can see,
 So long lives this and this gives life to thee.[1]

This section used the pentameter iambic and Shakespearean rhyme style, just like: ABAB, CDCD, EFEF, GG. When translator dealing with rhymes, they noticed that Shakespeare used seven end rhymes, these are /ay/, /ate/, /ines/, /m'd/, /ade/, /ow'st/, /ee/. The first three lines have same end thymes divided into odd lines and even lines. So translators also use seven

similar rhymes and arrangements. Such as translate work by Dai Liuling, he imitated the number and arrangements of Shakespeare's rhymes rigorously and translated them into Chinese. He controlled the same seven rhymes and arrangements as Shakespeare translation of Chinese, these are: /ian/, /e/, /uo/, /i/, /an/, /ing/, /un/. Translator using the rhymes of Chinese pinyin to restore Shakespearean Phonological features, maintain the original styles of the poem. When dealing with poetry translation, the translator has made a wise choice to retain and abandon the features of the original poem. The rhyme in the original poem can hardly be used directly in Chinese, so he retains the rhyme arrangement of the original poem, and does not blindly copy the original rhyme, retains the rhyme arrangements of the original poem and pick seven rhymes in Chinese Pinyin to the smoothness of the translation. He strives to the maximum extent to maintain the structure of the original poem, on the condition of without confusing the readers.

2.2 TRANSLATION OF SYLLABLE

Because of the features of Chinese, One Chinese words means one syllable. But English is different to Chinese. An English word has at least one syllable. It may have one, two, three or even more syllables. If divided the syllables of Shakespeare's original text, readers can find that each line has ten neat syllables, and it is not difficult for us to find from example from Dai Liuling's translation is strictly faithful to the original text: using ten syllables in each line too. Such a method may better restore the rhythmic effect of the poem. When the poem is recited, the translated text will show a similar effect of rhythm to the original text, thus arousing the emotional resonance of the audience in the target language. In addition, the original format and features may be more similar in structure. Dai's translation is very precise.[2] Starting from the typical structure and rhythm of the poem, he strives to restore the style of the original poem. Besides, he focuses on words, discovering rules on syllables, trying to restore the form of the original text.

3. TRANSLATING VERSE INTO VERSE IN EXPRESSION

Apart from the form and structure, the content of poetry is also a crucial part of consideration in translation. The translation of poetry should not only seek for faithfulness, expressiveness, and elegance, but also translate to maintain the charm and emotional theme of poetry, so that the poem can achieve desired effect. The key point of poetry translation is the management in figure of speech and intention of things. There are a thousand Hamlets in a thousand people's eyes. As for the translation of poetry content, each translator has his or her own opinion. In this section, the author will select what she think is the best translation text for analysis.

3.1 TRANSLATION OF RHETORICAL DEVICES

3.1.1 TRANSLATION OF "SHALL I"

"Shall I" is a very common expressions for daily use. But every translator has different ways of dealing with it. In the first sentence of this poem, different translators have different understanding and management in the translation of the first two words: " shall I".

Cao Minglun translated it as "Yes or No", Liang Shiqiu translated it as "Possibility" and Ruan Kun translated it as "Can or No". [3]Mr. Cao Minglun understands it as "could", Mr. Liang Shiqiu and Mr. Ruan Kun understands it as "possible". "Is it possible" is to ask the listener's permission and advice; it may involve the personal understanding of the translators. Combined with the following sentences, the author believes that this question contains two levels of meaning: firstly, whether should "I" use such a metaphor, secondly, whether such a metaphor is appropriate. The author feels that Mr. Cao's translation is concise and appropriate, which contains the above two meanings and conforms to the conventions of the target language. If too much explanation is made, it will appear that the words expressed are lengthy, which not only fails to make translation more accurate, but also limits the expression of meaning. Perhaps the target language readers will lose another analysis of these two meaning.

3.1.2 TRANSLATION OF CONTRAST SENTENCE

The second sentence of the poem reflects the main idea of the poem. The poem compares the beauty to summer. The second sentence of the poem reflects the main idea of the poem. The poem compares the beauty to summer. Suddenly, the theme turns around and leads to the beauty of the individual far better than summer, but the beauty of the individual, is not as good as the beauty of author's poems, because the beauty of the individual needs the help of the poet's poems show her charming. As Professor Gu Zhengkun said, "Although the summer is beautiful in nature, it's not as beautiful as the youthful beauty of your lover in summer. However, the youthful beauty of

lover is more beautiful than the poet's own immortal poems." [4]Mr. Cao's choice of "though" fully expresses the concession and turning point of the whole poem, and expresses the ingenious interest of the poem thoroughly and vividly. It's like expressing a compromise relationship, which will make the author feel sorry if summer is used to describe the beauty of a beautiful woman. Beauty is far more beautiful than summer in England, but it seems that there is no better object in nature to compare with beauty, even in beautiful summer in England.

3.1.3 TRANSLATION OF METAPHOR

In the fifth line, "eye of heaven" refers to the sun, which is a very vivid Metaphor. Mr. Liang Zong Dai, translated literally into the sun, perhaps lost the image of the original text. [5]He may not pay too much attention to the elegance of translation. Mr. Cao translated into the "giant eyes of the sky", retained the image of the original text, and translated into poetry

styles. Mr. Ruan's translation of "Eye in the sky" successfully retains the original image, but the collocation of "Eye in the sky" and Irradiation is slightly stiff. Ruan's translation of "Eye in the sky" assumes that the reader fully understands the meaning of "Eye in the sky" and does not considerate that the reader who lacking English background knowledge will have obstacles to understand. Therefore, when translating, he directly regards "Eye in the sky as the sun", thus eliciting the phrase "too bright" which is slightly astringent. Relatively speaking, Mr. Cao translated eye of heaven into "giant eye of the sky", which drew the eyes of the giant eye. It was reasonable and natural, and it would not be difficult to understand.

3.2 THE TRANSLATION OF INTENTIONS

Intention is a specific thing that poets possess symbolic meaning by processing and creating, rising from real life to artistic level. Imagination can create pictures in readers' minds and give readers deeper feelings. Imagination mainly reflects in vision, but it can also show other senses, such as touch, taste, smell and hearing. The key to a good poem is to reproduce a harmonious and perfect picture through perfect image and catchy rhythm. Because poetry mainly relies on vivid, rich, novel and unique artistic images to infect, educate and inspire readers, so that readers can enjoy beauty. From this point of view, it is very important to deal with the translation of poetry images. It directly affects the performance of poetry and reconstructs the poetry picture for the target language readers. Imagery and culture of poetry are inseparable and an important point in the management of poetry translation. Specifically speaking, the cultural image of a country is the accumulation of historical geography, customs, national concepts, thinking patterns, etc. Through development, it gradually forms its own systematic and associative cultural symbols with relatively fixed and unique cultural connotations. There are many things, in the eyes of Westerners and Chinese, which completely symbolize different meanings. For example, the dragon is embodies of evil in the West, while in China it is a sacred animal. Red means bloodshed and violence to them, and auspiciousness in China. If the translator does not understand these cultural common sense and translates the poems literally, it is easy to cause the reader to misunderstand the meaning greatly. On this condition, it is necessary for the translator to have a good understanding of the source language and culture to understand the author's intention and to have a high literary level of the target language, so as to find out what can express the same meaning from the target language. In this way, it can achieve similar or the same effect when translation text is read by the target language readers, to achieving functional equivalence in translation. AS follows:

Rough winds do shake the darling buds of May,
And summer's lease hath all too short a date:
Because of cultural differences, if you turn "lease" out

directly, Chinese readers will feel confused. What is "summer lease"? Chinese people generally use images such as "running water" and "arrow" to describe time passing quickly, and rarely use lease to describe it. And renting is not elegant in Chinese people's opinion. It will affect the aesthetic feeling of the whole poem if it is used directly in the translation. So here we need to use the method of free translation or in conversion.

3.3 THE TRANSLATION OF POETRY THEME

Shakespeare is a great writer in the world. At the same time, he was also an outstanding representative of the Renaissance and a great humanist. As the core of the Renaissance, humanism is reflected in all aspects of the Elizabeth I era, including politics, economy, literature and art. In the part of literature, we cannot ignore Shakespeare's contribution to the propaganda of the Renaissance. No matter at any age of his creation, readers can find the images of humanism in most of his works. Besides, people who have read his works can feel his unremitting pursuit of literature and art and his cheer for humanism. As an active advocate of humanism, the idea of "people-oriented" is embodied in every work and even every poem of Shakespeare. His famous sonnet clearly advocates rationality and knowledge, advocates the development of science and culture, opposes obscurantism and religious authority that suppress and imprison people's thoughts, and highlights the theme of "art is eternal even life is perishable". Artistic works can be a carrier based on human thoughts, just like humanistic thoughts, which will remain immortal in the future generations. Like Shakespeare's works, even though the Renaissance is hundreds of years away, we can still appreciate the humanism he wants to express in his works. When translating the poetry, the translator need to concern about the background of its poetry, such as history of this time. In the translation of sonnets, while pursuing accuracy and elegance, we should also strive to embody the theme he expressed. In the 18th sonnet, Shakespeare expresses his pursuit of love for beauty and nature through comparisons over and over again. Although summer is beautiful but fade away too soon. The beauty can be eternal, but it is not eternal in the sense of appearance. It should be transmitted to the future generations with his poems. His creation embodies love and beauty, which has been immortal perpetuated by later generations. If the translator can have a better understanding of the author's life and thoughts, it is possible to take more environmental and authors factors into account when dealing with the translation, to present or guide the reader to feel the further meaning of the original text. This may result in a higher level of translation than mere consideration of the text level.

3.4 THE TRANSLATION CONSIDERING THE TIMES

Since sonnets are written in ancient English, some translators have also adopted the form of ancient
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Chinese poetry in order to restore the original flavor of poetry. Such translations do give people an elegant feeling, but the premise of such a translation is to confirm the appreciation level of its readers. If the readers do not have a strong knowledge of classical Chinese, such a way of translation will reduce the readability of the translation. In addition, as far as the translation of this translating work is concerned, it adopts the rhyming features of ancient Chinese poetry. Each sentence has the same ending rhyme. Although it is neat, it loses the rhyming features of the original poem. Considering the structure of the poem, such a translation method may completely ignore the typical structure of the original poem, and completely "Sinicize" the original poem. However, it is undeniable that such a translation method has certain artistic value and research value for relevant professional researchers. So translators should pay attention to the types of readers in order to choose words when translating. Translation is a kind of service, making the readers understands the meaning of the original easily. It is necessary to deal with different types of readers differently. Here we should consider these aspects to determine language habits. In the modern society, translators had better choose words that conform to the current social conventions to increase readers 'understanding, and try to avoid some rare expressions and old words that have not been widely used in the past. However, in specific audiences, the use of old expressions can also be regarded as a way to retain style. The reader's characteristics, such as age, occupation and education etc. It will certainly affect the reader's understanding of the translated text. Therefore, if we can find that the reader has significant characteristics, we need to consider more carefully how to optimize the use of words. Especially in the translation of children's books, the translator needs to pay more attention to the use of words and may delete some elements that are not suitable for children's reading and understanding. Regional differences are also an important factor, for example, Taiwan and the mainland, although they all use Chinese, they differ greatly in the translation of many proper nouns, as well as in style of expression.

4. REQUIREMENTS FOR TRANSLATORS

4.1 AN OVERALL UNDERSTANDING OF THE TWO LANGUAGES AND CULTURES

Translation deals with language and culture, and language and culture involve all aspects of social life. As a translator, the first and most basic thing is to have a comprehensive grasp of the languages of both sides and a sufficient understanding of all aspects of the language. Only in this way can we be proficient and skillful in writing and modifying. This requires translators to accumulate scientific and cultural knowledge in history, geography, religion, politics, military affairs, diplomacy, literature and art, science, customs and customs, and pay close attention to the

development of all aspects at any time. Otherwise, even if there are any good ideas and opinions, there are good raw materials and a broad market, cannot be expected. Learning about the target language and the cultural background of the original language can avoid misunderstanding of poetry, thus avoiding the meaning of the translation totally different from the original meaning. The mastery of language is not only limited to the mastery of its mainstream aspects, but also includes the main dialects, national languages and traditional characters if necessary for translation. In the context of western linguistic cultural background, the most important thing is religious culture. Especially in literary works, religious indicate expressions can be seen everywhere. For this reason, many translators engaged in English literary translation read the Bible over and over again. In some cases, understanding the cultural background of the two languages plays a significant role in eliminating translationese and avoiding the excessive influence of alienation on reading. The wide range of translation is indeed a high requirement for translators. Therefore, translation must always accumulate and study at any time, pay attention to everywhere, and culture is everywhere in life.

4.2 RICH IMAGINATION

Translation is the recreation carried out by the translator based on faithfulness to the original text, adding the translator's thoughts and understanding, which inevitably leads to recreation. Transforming a language into another language always involves five steps: input--understanding--absorption--Transformation--output. In addition to the first step, the other four steps require the translator to have a rich imagination. With rich imagination and aesthetic power, creative people can promote such recreation to a reasonable level, especially in poetry. Poetry is the combination of melody and artistic conception. With rich imagination and aesthetic power, it can better express its connotation in a fascinating way. Rich imagination makes it easier for translators to understand the expression of literary works. Poetry is often more than just direct narration and expression, especially the content of Romantic poetry is often unlimited fantasy. When translating poetry, it is a big problem to describe the original imagination using the target language.

5. CONCLUSION

Whether Chinese or English poetry, there are two essential factors: one is strong rhythm; the other is strong emotion. So the original poem and the translated poem must be excellent in these two aspects. As far as poetry translation is concerned, if it is faithful to the original in meaning and style, it is a successful translation of poetry. The highest standard of poetry

translation is the harmonies of content and forms, beauty of form, intention, and sounds. Different translators have different literary styles, and have different understandings of the translated works and the strategies to be adopted in translation. All these suggest that different translations will have different styles closely related to the translator, although they translating the same text. There is no so-called distinction between right or wrong in the translated works, which requires us to appreciate different translations versions at the same time to have a deep understanding of this point, so that readers can understand the essence of the original. A good translation is the product of the perfect combination of the original style and the translator's style. Translating poetry into poetry is an excellent way of thinking in poetry translation. In the eyes of different readers, there may be such or such defects in the translated poems, which are already beautiful to the translator. The translators above-mentioned have their own characteristics in translating poems, which can satisfy the aesthetic tastes of different readers. In literary translation, the translator's works often make the translation artistic through the literary re-creation by translator. The translator's artistic ability has a higher impact on the translated works. Sometimes it can be said that the translator is the author of re-created works. Speak to the literary translation, especially poetry translation, it has great artistic value to explore and create more translated versions. Different translation versions can give readers different enjoyment. The evaluation of translated works is just a matter of opinion. It is of little significance to choose the best translation. More importantly, Translators study and analyze the specific methods used in translation works, to get more translation ideas. In this way, these works may enlightenment to Translators in poetry translation.

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An Analysis on Cases Violating the Cooperative Principle in Short Video Headlines in Bilibili

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Abstract: Nowadays, the society stepped into “New Media Generation”, entry barriers for disseminate news online has been almost removed, which paved the way for “we media” to redefine its part among people. Recipients counted on traditional media previously co-enjoy profits generated by information dispersion. Composers can make anything public just out of will, and the emergence of “short videos sharing platforms” accelerated the development such a trend. For the purpose of attracting potential audience or listeners, short video headlines are always designed like stunts to induce people’s curiosity. Considering from Grice’s Cooperative Principle, behaviors of such a kind violate the CPs consciously or unconsciously. This research took short video headlines selected from Bilibili as an example to analyze the violation in CPs and get conclusions as follows: (1) when up-loaders entitle a short video, he or she tends to violate the first sub-maxim of quantity, in other words, less information will be provided by up-loaders; (2) the violation of CPs can make headlines more colorful and attractive which makes higher viewership possible.

Keyword: Short Video; Headline; Cooperative Principle; Violation

1. INTRODUCTION

In order to meet the immerse needs of people to know more truth about the “911” terrorist attacks, e-mail, weblogs and forums were employed as conduit to transit news urged by public. A new form of media called “do-it-yourself-journalism” found its role in the society since then. [1]. When dating back to that special moment in history of media, people find that the world witnessed the rising of a new era which is dubbed as “we media era”. As Chinese have stepped into “New Media Generation” [2], burgeoning of we media undermines hegemony claimed by mainstream media gradually. We media has conversed its role from news loader into entertainment tool in recent years as short video sharing platforms defined their roles in society. In order to arrest more audience, bloggers choose to entitle their compositions in an exaggerate way, which always lead to an ill matching between contents of short videos and their headlines. Under such a condition, researchers put more emphasis on violation in Cooperative Principle (CPs) by news headlines. Pan [3] revealed that vague language helps

and strengthens the artistic effects of news items which cannot be expressed directly by the exact number or detailed information in English newspapers. Through the analyzing WeChat official accounts headlines, Huang Zhuojing [2] demonstrated that frequent violation in CPs makes headlines more attractive and higher click-through rate ensues. Nowadays, short videos especially emphasized by researchers otherwise the violation by their headlines are less discussed. In order to fill the vacuum, this article focused on violation of Cooperative Principle by short video headlines and made a try to find out the essence veiled under such a phenomenon. The author selected a video-sharing platform called Bilibili as the resource of short video headlines and tried to answer the three following questions:

- (1) What is the general picture of CPs violated by short video headlines from Bilibili?
- (2) Is there any big difference lie in CPs violated by different short video headlines in different categories?
- (3) Is there any preference in violation by short videos in different categories?

2. METHODOLOGY

Grice’s theory of Cooperative Principle is essentially about how people use language to have a better communication. He systematized his observation as “when we talk we try to be cooperative”. The principle supposes both parties knowing and observing the rules of conversation which Grice called maxims. And the principle is embodied in the four dimensions in which different sub-maxims involved:

- (1) The Maxim of Quality: Try to make your contribution one that is true, specifically:
 - a. Do not say what you believe to be false (in this article it was abbreviated as “wrong”).
 - b. Do not say that for which you lack adequate evidence (abbreviated as “lack of evidence”).
- (2) The Maxim of Quantity:
 - a. Make your contribution as informative as is required (abbreviated as “less information”).
 - b. Do not make your contribution more informative than is required (abbreviated as “more information”).
- (3) The Maxim of Relevance: Make your contribution relevant (abbreviated as “relevant”).
- (4) The Maxim of Manner: Be perspicuous and specifically:
 - a. Avoid obscurity (abbreviated as “obscurity”).

- b. Avoid ambiguity (abbreviated as “ambiguity”).
- c. Be brief (abbreviated as “brief”).
- d. Be orderly (abbreviated as “orderly”). [4]

In the experiment, the author selected Bilibili, a video-sharing platform as the resource of research materials. Bilibili is a social media platform which is focused on short videos’ peculiarity and up-loaders’ creativities. In its short videos field, there are 11 sub-fields fitting for this research: animation, indigenous animation, dance, music, digit, entertainment, fashion, game, knowledge, life, movie and television. Animation is a sector in which up-loaders can post some compositions about animation no matter the source materials abroad or domestically. Indigenous animation is an online sub-area where posters share

videos which relates animation composed by Chinese. Bilibili releases a ranking which consists of the top 100 videos in each category on the basis of their comprehensive scores. This ranking is updated once a day. Then, 5 items of every sub-category and a total number of 55 items of short video headlines were selected randomly. Each group of samples was analyzed according to Grice’s Cooperative Principle. Then, the data were analyzed by SPSS 23.0 to identify if there was any trait in violation.

3. RESULTS AND DISCUSSION

3.1 GENERAL PICTURE IN VIOLATION

Among all the 9 sub-maxims, the most violated was the first sub-maxim of quality, while the least violated one was relevance maxim (see in Fig. 1).

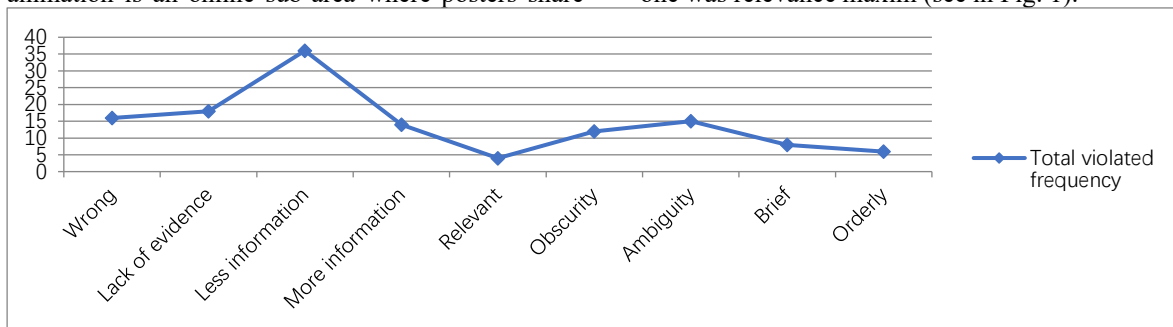


Figure 1. The total violated frequency of sub-maxims. Due to the limit on words, up-loaders tend to compress headlines though which can easily leads the loss of information. In addition, up-loaders prefer to hide some information so as to create a sense of mystic which can entice audience to be curious about contents of the video. In the other part, because of headlines are brief introduction about videos, up-loaders tend to make them relevant with videos by which audience

can swiftly sort out the one they most want. So, the relevance maxim was the least violated one among all maxims.

Among the 11 short video sub-categories, there was no obvious difference in total number of sub-maxims violated by each category except for the “music” one. The two which most violates CPs was the animation (15) and movie and television (14) (see in Fig. 2).

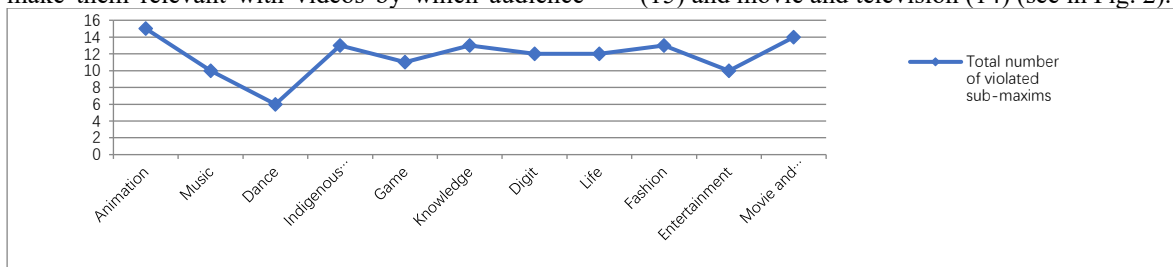


Figure 2. The total amount of sub-maxims violated by each sub-category

Both two categories are about films or television programs already premiered before, so, short videos as well as their headlines bear some similarities. As to quantity maxim, the violation was completely same. Four animation headlines and movie and television headlines violated first sub-maxim of quantity. In comparison with the second sub-maxim of quantity, no titles violated it. What made a difference is that the fourth sub-maxim of manner which suggests “be orderly”. Only two headlines from animation sector violated it. (see the detailed result in Fig. 3)

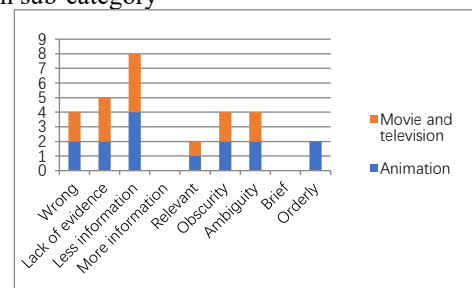


Figure 3. Numbers of violation by “animation” and “movie and television”

In addition, “music” sector violated the least CPs. Because the headlines used by music videos are

always the song names, which reduce the potentiality to violate maxims. What's more, the second sub-maxim of quality saying that "do not say that for which you lack adequate evidence" violated twice by music videos, which was roughly the same as other categories. The reason was the voluminous adoption of adverbs, meaning "most", "must" and so on, to inspire viewers' curiosity. Due to a major function of a

headline is to intrigue the interest of a potential audience, so up-loaders tend to make titles more exaggerate to catch more attention.

3.2 A COMPARISON AMONG ALL SUB-CATEGORIES

Considering the complexity of violation by all sub-categories, an overall description was generated to make clear of the holistic situation (see Fig. 4).

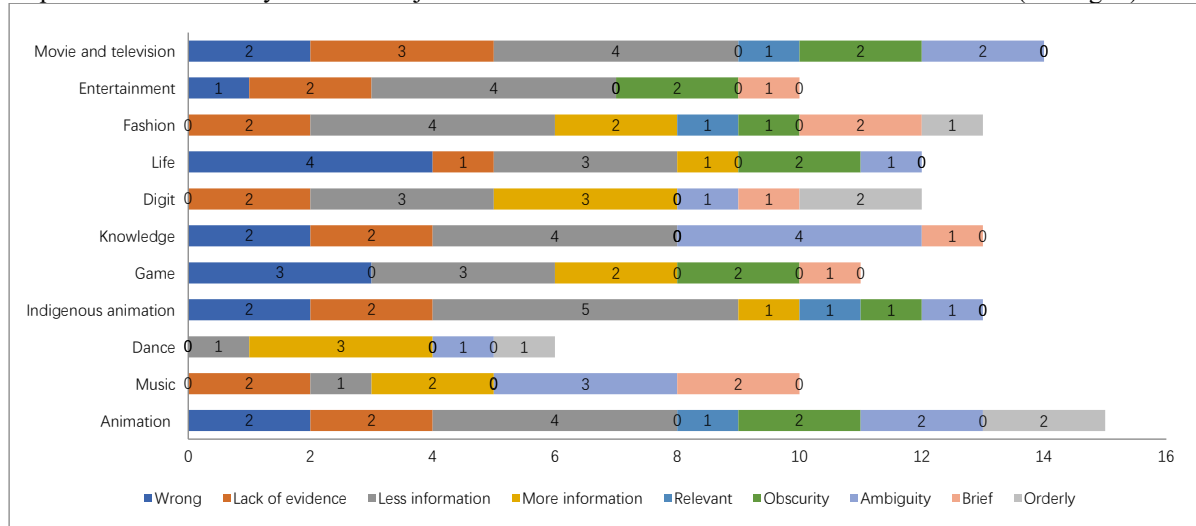


Figure 4. Detailed picture of violation

The first sub-maxim of quantity called "make you contribution as informative as is required" was the most violated by almost all categories except "music" and "dance". The reason is that videos belongs to these two dimensions are relatively short and succinct, usually, a song or dance, so that a smaller number of words could describe the video in a fair way. Contents of these videos can be expressed thoroughly within the word limitation. In addition, music and dance videos are monotonous to some degree so, there is no room or necessity for up-loaders to keep mystic in headlines. Nonetheless, word limitation still left influences on headlines in other types. For the sake of word limitation and maintaining mystic, sacrificing some information is indispensable. In the contrast, the sub-maxim least violated was the one of relevance principle called "be relevant". Because the main function of headlines is to introduce videos to potential audience quickly and briefly, so headlines must be designed to contain the tenet of videos. Under such a condition, "being relevant" is the essential principle employed generally by up-loaders. Only a small number of headlines claim the violation in relevance maxim.

From the distribution in Fig. 4, no obvious difference existed among all sub-categories except for music sub-field. In order to further attest if there were significant variance, a Friedman test was operated by SPSS 23.0, results are in Tab. 2.

Table 2. Analysis to distribution difference among sub-categories

N	9
Chi-Square	7.008
df	10
Asymp. Sig.	.725

According to Tab. 2, there was no significant difference in distribution of violation by different sub-categories (Chi-Square = 7.008, n = 10, p > .05). Furthermore, the strategy employed by up-loaders in different modules is roughly same though there is small diversity lies among up-loaders.

3.3 PREFERENCE IN VIOLATION

By analyzing the data, the first sub-maxim of quantity was frequently violated by up-loaders. However, whether there was a significant difference is still unknown. In order to further clarify it, a Friedman test was operated by SPSS 23.0 (see results in Tab. 3).

Table 3. The preference in violating CPs

N	11
Chi-Square	30.448
df	8
Asymp. Sig.	.000

There is a significant difference in the preference in CPs violation (Chi-Square = 30.448, n = 10, p < .05). In other words, when up-loaders design a title, they are more prone to supply less information about the video significantly for viewers.

4. CONCLUSION

According to the data analysis, such a conclusion can be summarized. (1) Up-loaders are prone to violating

the first sub-maxim of quantity (make your contribution as informative as is required for the current purpose of the exchange) significantly. Due to a less informative headline is, in one hand, not beyond the word limitation generally, in the other hand, it is mystic enough to intrigue audience's interest. In contrast, the relevance maxim (be relevant) was least violated when a headline is designed. It is because that only a relevant headline can introduce a video to audience in a swift and excellent way. (2) The strategy used by up-loaders to plan a headline for a short video was roughly same though the dance sector claimed less violation.

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A Comparison of Construction Efficiency of Different Types of Pile Drivers for Bored Piles

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Abstract: In a project under construction in Quzhou, Zhejiang province, comparative tests were conducted on construction efficiency of CZ-8 wire rope percussion drill, GPS-10 bored pile drill, ZJD2000/100 reverse circulation drill and XR280D rotary excavator. The experimental results show that the drilling efficiency of ZJD2000/100 reverse circulation drill and XR280D rotary excavator is obviously better than that of CZ-8 wire rope percussion drill and GPS-10 bored pile drill; ZJD2000/100 reverse circulation drill is suitable for the construction of bored piles with high requirements for the depth of hard rock; XR280D rotary excavator is applicable for the construction of bored pile with low requirement for the depth of hard rock.

Keywords: Wire rope percussion drill; GPS bored pile drill; Reverse circulation drill; Rotary excavator; Bored pile

1. PROJECT INTRODUCTION

A project under construction in Quzhou, Zhejiang has a total land area of 95,892 square meters and a total construction area of 286,312 square meters. It is composed of 18 high-rise buildings with 18 to 29 floors and shops along the street with 1 to 2 floors of ancillary buildings. There is a basement under which the depth of basement excavation is about 5 meters. The building adopts frame-shear wall structure, and the maximum column load standard value of high-rise residential buildings is estimated to be about 9000kN. The original site is mainly deserted roads, trees and vegetable fields, which are generally relatively open and flat.

The main building of this project uses the bored piles as the pile foundation. In order to ensure that the bored piles can provide sufficient bearing capacity, it is calculated that the bored piles should be put into 1m depth of the moderately weathered rock layer. The original plan of this project is to use CZ-8 wire rope percussion drill and GPS-10 bored pile drill to carry out the construction of bored piles. However, due to various reasons, the construction of the project was delayed for 5 months. In order to meet the construction deadline, after consultation with all parties concerned, it was decided to use ZJD2000/100 reverse circulation drill and XR280D rotary excavator for the construction of bored piles. To make clear the specific saving time for construction by using ZJD2000/100 reverse circulation drill and XR280D rotary excavator

than using CZ-8 wire rope percussion drill and GPS-10 bored pile drill, and facilitate the arrangement of subsequent materials and manual plans, in the pile test stage, comparative tests were carried out on construction efficiency of four kinds of bored pile drivers, namely, CZ-8 wire rope percussion drill, GPS-10 bored pile drill, ZJD2000/100 reverse circulation drill and XR280D rotary excavator, near the same geological exploration hole Z9. The geological section of geological exploration hole Z9 is shown in Figure 1 below.

In the figure: the first layer is miscellaneous filling soil layer; the second₁ layer is silty clay layer; the second₂ layer is clayey silt; the third layer is mucky silty clay layer; the sixth layer is pebble bed; the eighth₁ layer is completely weathered granite layer; the eighth₂ layer is highly weathered granite layer and the eighth₃ layer is moderately weathered granite layer.

2. INTRODUCTION TO ALL KINDS OF PILE DRIVERS

2.1 CZ-8 wire rope percussion drill is shown in Figure 2, with the maximum drilling depth up to 100m, drilling diameter up to 1.2m and drilling power of 75kW. It is mainly used for drilling in hard geological strata such as rocks. [1~3]



Figure 2 CZ-8 Wire Rope Percussion Drill

2.2 GPS-10 bored pile drill is shown in Figure 3. The maximum drilling depth is 50m, the drilling diameter is generally no more than 1m, and the drilling power is 30kW. It is one of the most commonly used bored pile drivers in the market at present. [4~5]



Figure 3 GPS-10 Bored Pile Drill

2.3 ZJD2000/100 reverse circulation drill is shown in Figure 4. Its maximum drilling depth is 120m, the maximum drilling diameter is 2m, and the drilling

power is 152kW. It adopts full hydraulic infinitely variable speed, constant pressure and constant speed drilling, and carries the self-propelled crawler chassis to subvert the tradition, which makes the movement

more convenient and the operation more flexible, showing high drilling efficiency and good hole forming quality.[6~8]

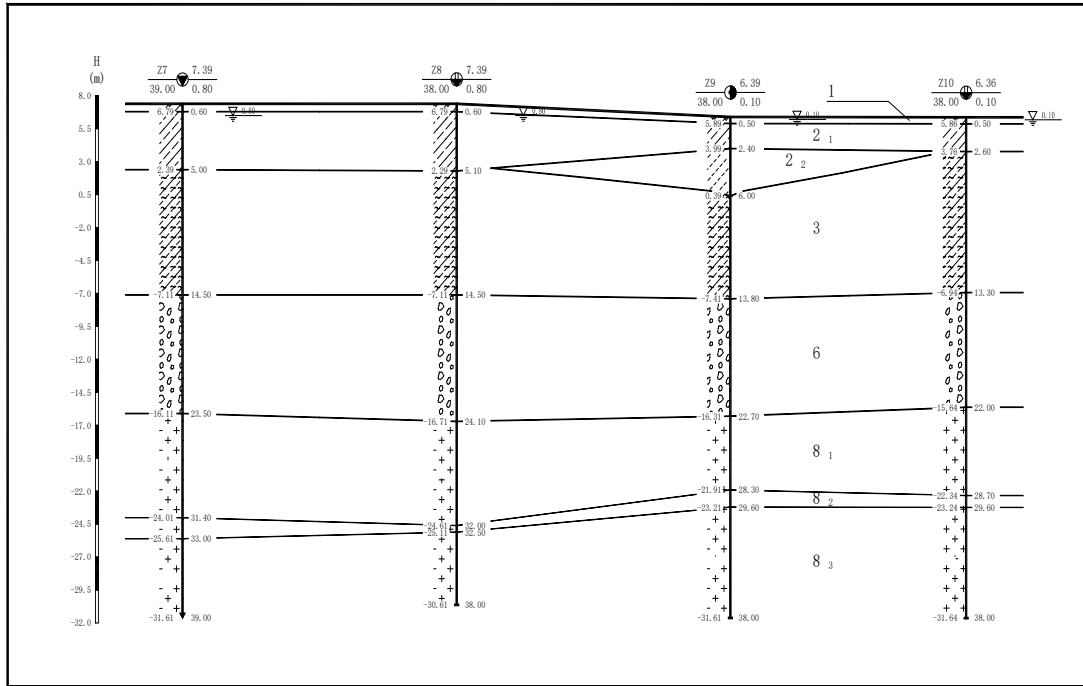


FIG. 1 Geological section of geological exploration hole Z9



Figure 4 ZJD2000/100 Reverse Circulation Drill 2.4XR280D rotary excavator is shown in Figure 5. Its maximum drilling depth is 74m, the maximum drilling diameter is 2.5m, and the drilling power is 298kW. It has the advantages of high drilling efficiency, good pile forming quality and low pollution. [9]



Figure 5 XR280D Rotary Excavator
 3.COMPARISON OF CONSTRUCTION EFFICIENCY OF VARIOUS PILE DRIVERS
 CZ-8 wire rope percussion drill, GPS-10 bored pile drill, ZJD2000/100 reverse circulation drill and XR280D rotary excavator were respectively used to test piles near the geological exploration hole Z9. The interface between strongly weathered granite layer and moderately weathered granite layer is at the position of 29.6m underground, and the final hole of bored pile is at the position of 30.6m underground The relation

between drilling depth and time of each pile driver is shown in Figure 6 to Figure 9.

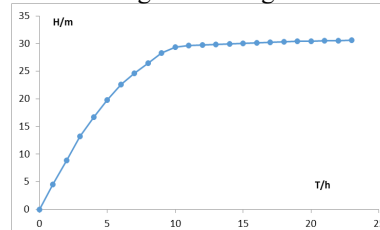


FIG. 6 Relation between drilling depth and time of CZ-8 wire rope percussion drill

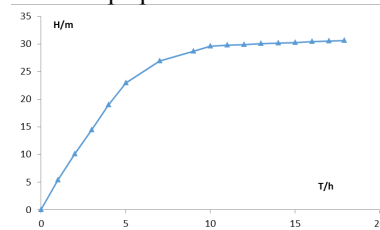


FIG. 7 Relation between drilling depth and time of GPS-10 bored pile dri

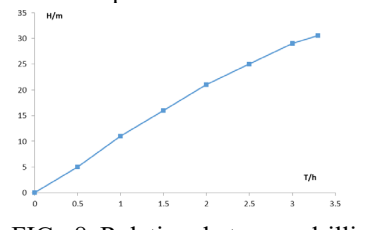


FIG. 8 Relation between drilling depth and time of

ZJD2000/100 reverse circulation drill

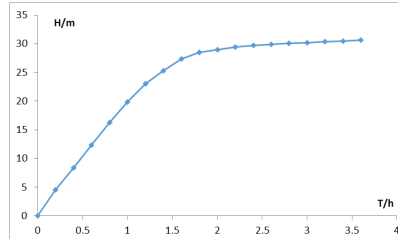


FIG. 9 Relation between drilling depth and time of XR280D rotary excavator

Results show that:

3.1 The drilling speed of CZ-8 wire rope percussion drill is significantly slower than that of the other three drilling machines. It takes about 23h for the hole formation of a bored pile;

3.2 The drilling speed of GPS-10 bored pile drill is relatively fast in the early stage, but when it reaches the granite layer, especially the moderately weathered granite layer, the drilling speed is significantly slower, only 10cm/h, and the hole formation of a bored pile needs about 18h;

3.3 ZJD2000/100 reverse circulation drill shows a good linear relation between drilling depth and time, and the drilling speed has little relation with the rock type. It only takes 3.3h for the hole formation of a bored pile;

3.4 XR280D rotary excavator is extremely fast in the early stage, and the drilling speed can reach more than 15m/h. However, when it comes to the moderately weathered granite layer, the drilling speed is significantly slowed down, only 0.8m/h, and the hole formation time of a bored pile is 3.6h.

4. CONCLUSION

4.1 There were 1,352 bored piles in total in this project. It was estimated that the project could be completed in about 75 days by using 4 ZJD2000/100 reverse circulation drills and 2 XR280D rotary excavators through comparative tests of construction efficiency of various pile drivers. In fact, the project took 73 days to complete the bored piles, which was very close to the predicted results of the test and 45 days less than the original plan to use CZ-8 wire rope percussion drill and GPS-10 bored pile drill.

4.2 ZJD2000/100 reverse circulation drill is suitable for the construction of bored piles with high requirements for the depth of hard rock; XR280D rotary excavator is applicable for the construction of bored pile with low requirement for the depth of hard rock. GPS-10 bored pile drill is the most commonly used bored pile drill driver in the market, but in the future it will be definitely replaced by ZJD2000/100 reverse circulation drill and XR280D rotary excavator.

4.3 In this project, since the depth of the bored pile into

the rock is required to be 1m, the drilling efficiency of ZJD2000/100 reverse circulation drill is not much different from that of XR280D rotary excavator, but the power consumption of ZJD2000/100 reverse circulation drill is only half of that of XR280D rotary excavator.

4.4 Although ZJD2000/100 reverse circulation drill shows fast construction speed and low energy consumption, it is easy to cause mud pool overflow due to the powerful water pump of ZJD2000/100 reverse circulation drill. In order to ensure the cleanliness of the site, it is suggested to set several large mud pools in advance.

4.5 Not only is the construction speed of CZ-8 wire rope percussion drill extremely slow, but also the power consumption of single pile construction is large, so it is recommended not to use CZ-8 wire rope percussion drill in similar construction in the future.

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On the performance characteristics and inheritance of NuoTang opera in Western Hunan

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Abstract: NuoTang opera has a long history and is known as the "living fossil" of Chinese drama. It originated from the Han nationality area in the Central Plains. After it was introduced to the west of Hunan, it gradually "became the west of Hunan", forming today's NuoTang opera in the west of Hunan. This paper analyzes the performance characteristics of NuoTang opera in Western Hunan from the aspects of the use of masks, accompaniment of folk instrumental music and unique singing, and puts forward some suggestions on the inheritance of NuoTang opera.

Keywords: Nuotang Opera; Performance Characteristics; Inheritance

1. INTRODUCTION

NuoTang opera in Western Hunan, also known as Nuo opera, Nuo wish opera and Nuo altar opera, is a form of drama transformed from the original activities of Nuo sacrifice. It accumulates religious culture and folk art in various historical periods, and is the product of the combination of religious culture and drama culture. [1-3] As the living fossil of Chinese drama, NuoTang drama is not only the intangible cultural heritage, but also the artistic treasure left by our ancestors. However, with the acceleration of the western development process, the ancient drama is inevitably impacted by modern culture, facing many problems such as the loss of performers, the lack of successors and the aging of practitioners. How to study and sort out Nuotang opera in Western Hunan, to find ways to deal with the crisis, and to inherit Nuotang opera culture has become an important issue that we are eager to study and solve.

The original prototype of NuoTang opera is the witchcraft activity of exorcising ghosts and chasing epidemic diseases, and it has experienced the evolution process from Nuo sacrifice, Nuo instrument, Nuo dance and Nuo opera, which is full of strong religious color and unique performance characteristics.

1.1 USE OF MASKS

The mask source of NuoTang opera is very old. It is the exaggeration of the tattoo, which not only increases the sense of mystery and deterrence, but also gives people aesthetic feeling. In the process of the continuous development of the performance of NuoTang opera, masks have gradually become an important means of the plastic arts of NuoTang opera, and also the most important props of NuoTang opera.

From the perspective of artistic modeling, there are three kinds of masks in NuoTang opera, namely, Zhengshen, ferocious and secular characters. However, the mask of the same character has changed. It can be painted in different colors of red, yellow, blue, white and black at the same time, which makes the character more vivid. NuoTang opera mask has a high value in modeling.

1.2 A VARIETY OF FOLK INSTRUMENTAL ACCOMPANIMENT

In NuoTang opera, gongs, cymbals, drums, horn horns, tuba and Hu Qin are often used for accompaniment, and these musical instruments are exactly the most commonly used and popular musical instruments in Western Hunan. The addition of musical instruments not only makes Nuo opera more popular, but also adds atmosphere and color to the plot, enlarges the musical structure of singing music, fills in the gap of interlude music, and forms a local opera music style with distinctive characteristics, integrating song, dance, and pleasure.[2]

1.3 SIMPLE AND UNIQUE LYRICS

NuoTang opera singing music was born in the folk and grew up in the public. With the popularity of this kind of sacrificial activities in the folk, in order to serve more people, this function of "entertaining God" gradually transformed into "entertaining people", and gradually combined with the singing of some local operas to form the prototype of the singing of the stall opera, so the NuoTang opera has a profound mass basis from its production and development. NuoTang opera in Western Hunan has more than one hundred Qupai. The rhythm of the aria fluctuates with the changes of the characters feelings. It is beautiful and bright. The words and sentences are smooth and rhymed. The melody is vivid and pleasant. Some of the tunes of Miao songs and Tujia folk songs are mixed, including monophonic and polyphony, chorus, lead singing and other forms.

In addition, simple pentatonic scales are often used in the aria. The rhythm is simple and the lyrics are also straightforward and simple. They are composed of some simple local words. The dialogue is mostly in the form of one question and one answer.

1.4 UNIQUE PERFORMANCE

The performance program of NuoTang opera has its own characteristics. First, there is a certain program

for characters to appear. Such as "half moon" for Dongpo and "grand reunion" for site. The scenes with more characters include "big flower" and "small flower". There are also many unique performances. For example, the movements of the site, with straight neck extension, stiff upper body, head and arm stretching back and forth at the same time, are mechanical and funny, with a sense of humor. They are called "Phoenix nodding" and "rice sifting flower". There are "shelf road", "running road", "pulling Fengmao" and other movements in the appearance of the general. These lifelike movements are the impetus and innovation to the development of opera.

2. THE INHERITANCE OF NUOTANG OPERA IN WESTERN HUNAN

2.1 ANALYSIS ON THE DEVELOPMENT OF NUOTANG OPERA

NuoTang opera in Western Hunan is an ancient art treasure of China. But with the progress of society and the transformation of culture, the traditional culture of Nuotang opera in Western Hunan is quietly losing. Although the culture of Nuotang opera continues to be inherited and is valued by the local government and art workers, the artistic form of Nuotang opera is still declining, with the number of performing troupes, performers, audiences and plays decreasing.[3]

According to Mr. Chen Qigui, a 72 year old local artist, there are several existing local theatrical troupes and stall theatrical troupes in Fenghuang County. These troupes are all voluntary organizations of the people, without the support of government agencies and the help of folk fund organizations. The funds for performances are very tight. If someone asks for a performance, they will go home to work or go out to work. Therefore, there is a greater randomness in the number of performances. Some troupes perform more than ten times a year, and only a few times a year.

As a living fossil of Chinese opera, the most realistic problem in the development of Nuotang opera is the lack of successors. According to the author investigation, most of the artists who perform this ancient drama are about 50 years old. Except for the family children who will hum a few sentences, almost no young people learn from teachers. Most of the young people in rural areas are affected by the economic tide, and they go out to work. Even the family disciples are forced by life, or the temptation of external factors, and they abandon their business and turn to other business. The young people in urban areas are interested in research, and the number of people who inherit this art is even less.

2.2 NUO TANG OPERA EFFECTIVELY INHERITS CARRIERS AND WAYS

With the continuous development of social economy, the traditional culture and modern strong culture of Western Hunan are in a phase of conflict and exchange, exclusion and integration, inheritance and variation.

ACADEMIC PUBLISHING HOUSE

Facing the current situation of Nuotang opera development in Western Hunan, how to take practical measures to inherit and develop Nuotang opera is an important practical issue to protect and inherit the intangible cultural heritage in Western Hunan.

2.2.1 ADMINISTRATIVE LEGISLATION TO PROTECT THE INHERITORS

The government has an unshirkable legal responsibility to protect and develop intangible cultural heritage. Government legislation is a strong guarantee for the protection of intangible cultural heritage and the fundamental path to protect intangible culture from the system. Emphasizing the value and significance of intangible cultural heritage in legal form, making clear the connotation of intangible cultural heritage, correcting improper protection measures, punishing the destruction of intangible cultural heritage, and promoting the protection and development of intangible cultural heritage on the normalization Road, so that we can inherit and carry forward the essence of traditional culture and save the endangered intangible cultural heritage. There are laws to follow and rules to follow in all production.

2.2.2 ATTACH IMPORTANCE TO EDUCATION ON INHERITANCE

Education is the central link of intangible cultural heritage protection and development, and the key to form students attitude and behavior of protecting intangible cultural heritage spontaneously and autonomously. Many young people don't know what kind of opera Nuotang opera is. They have even heard of it. Our culture is passed down from generation to generation by these young people. Only as a kind of quality education, we can vigorously promote the music education of the stall play in the school, which can play a role of inheritance, and make the next generation build up national pride and self-confidence. In addition, if Nuotang opera music wants to be a model of local music education, it is necessary to start from the training of teachers. Teachers need to know more about the cultural knowledge and background in this area, and learn the skills of performing stall opera. Only when they can sing can they teach students. At the same time, we should carry out the second class, organize the students to arrange the repertoire and play the role in it.

2.2.3 BUILDING A SPECIAL EXHIBITION HALL OF NUO TANG OPERA

The management and protection of NuoTang opera artistic resources should not only adopt the traditional methods such as sorting out music documents, publishing and displaying costumes, props and scenery, but also use modern digital information means to implement effective protection and management. For example, when the first-hand raw materials (including the basic information of folk artists, genealogies, technical achievements, singing methods, etc.) are obtained through field investigation, in addition to the

method of recording, it is also necessary to use modern technology to record and save, and establish a data base. This kind of exhibition hall can protect the Nuotang opera culture, not only can let tourists understand the historical and cultural origin and performance characteristics of Nuotang opera in Western Hunan, but also can make Nuotang opera moderately developed in the reserve, and become an important link of tourism development.

2.2.4 INHERITANCE IN TOURISM AND CULTURAL INDUSTRY

Now national tourism has become the pillar industry of Xiangxi Prefecture, which plays an important role in economic construction. The vigorous development of tourism industry in Xiangxi Prefecture is based on its rich national culture. There are performances of national customs in all major scenic spots. Nuotang opera is an important part of it. At present, there are irregular Nuo performances in Chaoyang palace of Phoenix and Fubo palace of Jishou. Nuo instruments and Nuo plays performed by ordinary actors can also be seen in the daily folk song and dance performances in the scenic area of Jishou.

3.CONCLUDION

NuoTang opera, with its primitive simplicity, strong religious color and gorgeous and unique singing and dancing performances, not only eliminates the travel fatigue of tourists, but also renews a sense of novelty and mystery, which makes people linger and forget to return. Nuotang plays an important role in the performance of ethnic customs in Western Hunan. It is a beautiful scenery in Ethnic Tourism in Western Hunan. Therefore, it is an effective way to promote the inheritance of NuoTang opera to explore and develop Nuotang opera, a national cultural product, while developing tourism and cultural industry.

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The Application of Artificial Intelligence in Education

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Abstract: From the birth of artificial intelligence to today, it has been integrated into our lives in many fields. At the speed of science and technology development today, the trend of artificial intelligence to enter education must be unstoppable. What are the characteristics of artificial intelligence? What are the advantages of artificial intelligence? How to effectively use artificial intelligence to integrate into classroom teaching is worthy of our in-depth study. Based on actual cases, this article explores the advantages and disadvantages of artificial intelligence to make artificial intelligence more effective in providing advice and suggestions in the field of education.

Keywords: Artificial intelligence; Education; Instructional design

1. THE OVERALL DESIGN OF THE ARTIFICIAL INTELLIGENCE COURSE TEACHING CASE LIBRARY

1.1 SET ADVANCED

Practicality and cutting-edge teaching content reform integrates the contents of excellent artificial intelligence teaching materials 2-6 at home and abroad, establishes an artificial intelligence knowledge system, and extracts the main points of artificial intelligence courses, and determines the collection of advancedness and practicality. And cutting-edge teaching content. The core idea of artificial intelligence is the theory, methods, and techniques of studying the laws of human intelligent activity and simulating human intelligent behavior. Therefore, artificial intelligence should be centered around "intelligence". Because of the complexity of intelligence itself, it is difficult to describe it with a single theory and method. Therefore, the theme of intelligence can be characterized by establishing different levels of artificial intelligence. It is divided into four different levels: the lowest layer, the abstraction layer, the logic layer, and the application layer. At the lowest level, neural networks and evolutionary computing aid perception and interaction with the physical world.

1.2 ESTABLISHMENT OF TEACHING CONTENT

The construction of the teaching case database of the artificial intelligence knowledge system is based on the determined teaching content, knowledge focus and knowledge difficulties, and collects case materials from various domestic and foreign classic teaching

materials, scientific research projects, research and development design, production construction, and domestic and foreign artificial intelligence websites, Organize them, and write teaching cases and contents of each knowledge point [1-2].

2. DETAILED DESIGN OF ARTIFICIAL INTELLIGENCE COURSE TEACHING CASE

The specific design of teaching cases should include case specifications such as chapters, key points of knowledge, difficult points of knowledge, case names, case content, case analysis process, case teaching methods, and thinking / discussion content. Discuss three cases of comprehensive application cases.

2.1 TEACHING CASES AND IDEAS

Single Case Design Taking the teaching content of neural network classroom in artificial intelligence course as an example, the design of a single case based on knowledge points is introduced. Neural networks have a wide range of applications in pattern recognition, image processing, combination optimization, automatic control, information processing, and robotics, and are one of the main contents of artificial intelligence courses. The teaching content mainly introduces the origin, characteristics, structure, models and algorithms of artificial neural networks, and the representation and reasoning of neural networks. These are the basics of neural networks.

Knowledge focus: neural networks. **Knowledge difficulties:** the structure, representation, learning algorithms, and reasoning of artificial neural networks.

Case name: How to recognize handwriting. **Case content:** training a neural network with a training sample set to generalize the results obtained from previous training, accurately classifying previously unseen data. **Case analysis process:**

- (1) Sample bitmaps for training digital recognition neural networks;
- (2) Backpropagation BP algorithm;
- (3) representation of neural network;
- (4) Generalization ability of neural network trained using error back propagation algorithm;
- (5) After training a neural network, save the weights in the network for practical application. **Case teaching means:** neural network demonstration of handwriting recognition.

Thinking / discussion content: (1) Training improvement and weight adjustment improvement;

- (2) Over-learning / over-fitting phenomenon, that is,

the training time on a data set is too long, causing the network to over-fit to the training data, and it has no generalization to new data that has not appeared.

2.2 THINKING ABOUT A MULTIPLE-QUESTION CASE

One-question multi-solution case design One-question multi-solution case helps students connect related knowledge points to form an interconnected knowledge network. Taking the knowledge and teaching content of artificial intelligence courses as an example, the design of a multi-question case is introduced. Knowledge and its representation are one of the three major contents of artificial intelligence courses (knowledge representation, knowledge reasoning, and knowledge application).

Represent and abstract concepts by explaining and discussing the "monkey and banana problem" case. This case is organized and designed from domestic and foreign textbooks, and includes the following normative content. Chapter: Knowledge and its representation. Knowledge focus: state space method, problem reduction method, predicate logic method, semantic network method, etc. Difficulties of knowledge: the differences and applications of knowledge representation methods. Case name: Representation of monkey and banana problems with state space representation and predicate logic, respectively. Case Content: A robot monkey, a box and a bunch of bananas are in the room. The banana hangs under the ceiling, but the monkey is not tall enough to touch it. How do monkeys pick bananas?

How to use multiple knowledge representation methods to represent and solve this problem?

Case analysis process:

Thinking / discussion content: (1) What are the main factors to consider when choosing a knowledge representation method? (2) How to comprehensively use multiple knowledge representation methods to obtain the most effective problem solution?

2.3 COMPARISON BETWEEN A SINGLE CASE AND A MULTI-SOLUTION CASE

Comprehensive application case design Compared with the single case and one-question multi-solution case, the comprehensive application case can more effectively inspire students to think and explore all-round problem solving methods. Taking the robot action planning simulation as an example, the design of a comprehensive application case of artificial intelligence is introduced. This case includes the following normative content. Chapter: Comprehensive Applications of Artificial Intelligence. Knowledge focus: research directions and application areas of artificial intelligence. Knowledge Difficulties: Technology Integration of Artificial Intelligence. Case name: Simulation of robot action planning. Case content: Comprehensive application of various artificial intelligence technologies and methods such as behavior planning, knowledge representation

methods, robotics, neural networks, artificial intelligence languages, etc., to describe and visualize robot action planning problems. Case analysis process:

(1) Solving robot behavior planning problems. Using the state reduction method and hierarchical planning technology, the total task to be completed by the robot is decomposed into several sub-tasks arranged in sequence; according to the task process, several key intermediate states are determined, and the state is corresponding to the goal of the process sub-plan; Planning execution and operational control, as well as robotic process control and environmental constraints. (2) Robot behavior planning and design based on predicate logic. Define the predicate logic that expresses the state; use the predicate logic to describe the initial state of the problem, the target state of the problem, and the intermediate state of the robot action planning process; define the constraints and behaviors of the operation.

(3) Robot control system. Define the control architecture of the robot platform, including reactive control, containment structure, and other control systems.

(4) Pattern recognition based on neural network. Neural network method and BP algorithm are used to identify objects such as desktop teapots and cups, and to extract object graphic features.

(5) Robot programming language. Visualize robot action planning behavior using artificial intelligence language. Case teaching method: simulation demonstration of robot action planning. Thinking / discussion: How will artificial intelligence develop? Where should further research be carried out?

3. SPECIFIC IMPLEMENTATION DETAILS OF EXAMPLE TEACHING LINKS AND PROCESSES

The implementation of artificial intelligence case teaching is targeted at third-year undergraduates majoring in software engineering at the author's college. Specific implementation details are as follows.

(1) Advanced, practical and cutting-edge teaching content. Introduce and integrate well-known foreign artificial intelligence teaching materials to ensure the advanced content of the course. At the same time, the research results and technologies of cutting-edge artificial intelligence are integrated into the case teaching of the course.

(2) The organic integration of "classroom teaching-practical activities-practical applications". In the case teaching process, the traditional teaching concept is centered on learning to be transformed into an innovative application-oriented teaching concept, centered on innovation, and the traditional teaching is centered on classroom teaching to focus on classroom teaching and practical activities. The practical application of problem scenarios and design teaching cases in the context will deepen students' understanding of teaching content, while improving students' thinking ability and practical comprehensive

application ability.

4. CONCLUSION

Aiming at the main problems that need to be solved in the current artificial intelligence course teaching in China, the author proposes the construction method of artificial intelligence teaching case library integrating advancedness, practicality and cutting-edge, and the organic integration of case teaching-practical activities-reality applications New ideas in case teaching practice.Guided by modern educational thoughts, according to the characteristics of the development of artificial intelligence disciplines, combined with domestic and foreign scientific research and teaching achievements, continuously update and improve teaching content, strengthen the construction of artificial intelligence course teaching case, and carry out research and practice of case teaching methods, so that students Not only can master

the basic theory and methods of artificial intelligence, but also have the ability to independently analyze and solve practical problems using artificial intelligence technology.From the perspective of practical effects, the reform of these teaching contents and teaching modes is of great significance to promote teaching work, improve teaching quality, and cultivate international innovative talents.

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On the Artistic Characteristics of HuLuSheng Dance in Weishan

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Abstract: HuLuSheng Dance is a comprehensive art with a certain folk core and rich folk poetry, music, and dance culture. It has become a common cultural wealth of people of all ethnic groups in some multi-ethnic areas, with a wide range of national and mass characteristics. This paper tries to analyze the artistic characteristics of hulusheng dance in Weishan of Dali from the aspects of music, dance rhythm, combination level and custom activities.

Keywords: Artistic Characteristics; Hulusheng Dance; Weishan

1. INTRODUCTION

There are seven categories of traditional songs and dances of Yi nationality in Yunnan (HuLuSheng Dance, moon dance, cigarette box, four strings, music, flower drum and bronze drum), among which HuLuSheng Dance is the most popular and popular one in the region, and also the most popular one in all ethnic groups in Yunnan[1-3]. Especially in Weishan area of Dali, HuLuSheng Dance, an ancient art, not only has strong vitality and high value of real stage art appreciation, but also is taking a solid step to develop and expand itself. The so-called "life love to fight and shake hands song" (both "shake hands song" and "shake feet song" are the names of dance movement characteristics of "fight song"), which is different from any other folk song and dance in terms of music, dance movement law, combination level, interlinkage, style, etc.

Weishan County, Dali Prefecture is the ancient capital of Nanzhao, which is dominated by Yi and Bai ethnic groups. HuLuSheng Dance was popular in that area at that time, and now it has been performed on the basis of HuLuSheng Dance as stepping song and playing song. Weishan Yi people call hulusheng dance "step song" or "ECKA". In HuLuSheng Dance, the dance tunes of hulusheng in Yi language sung by men and women are all improvisational, rich in content, including singing local customs, praying for or looking forward to harvest of crops, prosperity of six animals, singing scenery of mountains and rivers, flowers and birds, snow and moon, singing bitterness of life, and expressing love, except hulusheng. In addition to dancing, singing alone or in pairs when working in the field, cutting firewood and grazing, has its own flavor. Therefore, Weishan Yi people will dance with gourd Sheng from the beginning of understanding, which is really "when Lusheng rings,

the foot stick itches; when the flute blows, the tune flies".[2]

HuLuSheng Dance of Yi nationality in this county can be divided into two categories according to its content and nature. One is HuLuSheng Dance, which is held in funeral, column erection, marriage and birthday celebration. The time is not fixed, and each family can hold it. Another kind of HuLuSheng Dance is held in traditional festivals (such as the Spring Festival, February 8, etc.) and at fixed time of Chaoshan temple fair. It has a fixed time and a large number of people. It is held by villages in turn in a fixed time. Hulusheng dance lasts all night.

2. ARTISTIC CHARACTERISTICS OF HULUSHENG DANCE OF YI NATIONALITY IN WEISHAN

From the overall characteristics of HuLuSheng Dance, "people around the campfire step on the ground in a circle as a festival", naturally reminds us of the scene of people living in groups and accompanied by fire in the primitive tribal period. From the scene of people's revelry in HuLuSheng Dance, we can think of the scene of people after hunting. Then from the simulation of some movements of HuLuSheng Dance, "castrated chicken wag tail", "fly leisurely foot", to the emotional communication of "foot hook", "back-to-back", "heart to heart" and various turns, we can clearly see the close relationship between the stepping song and the life of Yi people. It can be said that the HuLuSheng Dance of the Yi nationality in Weishan comes from life and is constantly enriched, developed and improved in life, which in turn varies with the natural conditions of various regions and the living customs, beliefs and psychological states of the local Yi people. This naturally formed the unique HuLuSheng Dance in Weishan area.

2.1 RICH FOOT MOVEMENTS, SUPPLEMENTED BY SIMPLE HAND OR WAIST MOVEMENTS FROM TIME TO TIME

HuLuSheng Dance is mainly composed of dancing and stamping, or "dancing and stamping", which is different from other dance styles. In other areas of Weishan Yi People dancing music and moon jumping, strings are mainly used as accompaniment instead of Sheng, because there are few steps. The HuLuSheng Dance, which is mainly composed of trampling and stamping, is lyrical, small trampling and big trampling when it is excited; even when it is leisurely walking, the foot still uses some strength to cause the shaking

of the body. Even if it is the right foot, the right foot in the dancing music is light and elegant, but in the HuLuSheng Dance, it is the right foot after stamping, after stepping. In the folk there is a description of "dancing with three feet, stepping on yellow ash to make medicine".

As HuLuSheng Dance has been limited in both hands and arms, in addition to the force under the legs, it is necessary to express feelings by body movement, exaggeration, habit, and form a dance law. We can regard the downward movement of the body caused by playing the HuLuSheng as the basic dynamic of HuLuSheng Dance. Then, it shows that the head and chest are forced downward, the knees are bent and extended, the clap is up, and the clap is once. When they dance, they use Sheng and flute to guide them. Their bodies rise and fall, and their feet dance and stamp. From afar, the crowd, such as the tide, has its own characteristics. Because of the tight shoulder and body, hand in hand, there is no change in formation except walking circle, and the dance action is simple.

2.2 THE DANCE FORMATION IS GENERALLY BASED ON THE BIG CIRCLE DANCE

The player who blows the gourd is the leading dancer. There are vertical rows and circle (semicircle) formations. In terms of form, the main body is the big circle dance. The big circle dance is composed of several small circle dances. The members of the small circle dance are mainly young men and women from a village or a family at first. Later, due to the increasing number of people, the members of the small circle dance did not distinguish men, women, children or the host and guests; the dancers moved around the circle or formed in the process of singing and dancing facing the center of the circle.

The traditional dance formation of the Yi people is mainly a circle, which undoubtedly has a direct connection with the natural environment of the Yi People. Most villages are located on the hillside, and the regulations of the villages. Whenever village activities are held, people will focus on a slightly flat place in the village to make a comparative study of the dance formation. For example, many ethnic groups live in a relatively flat living environment, and the villages form certain regulations. So, a certain length and width of the street appeared. Whenever people hold activities, they can be carried out in fixed places or on the streets, as well as singing and dancing activities. Therefore, singing and dancing activities not only appear in a certain form of venue, but also in a mobile way.

2.3 THE ACTIVITIES OF " HULUSHENG DANCE "

The activities of " HuLuSheng Dance " are mainly held in several specific custom activities, such as marriage, foundation building and new house building. Marriage, foundation and house building are three major events in life. The completion of these events requires a grand

celebration with a strong festive atmosphere. In these occasions, hulusheng dance of Weishan Yi nationality is held as the main event day. However, in different occasions, the procedures and singing contents are different, as follows:

2.3.1 "HULUSHENG DANCE FESTIVAL"

"HuLuSheng Dance Festival" on the eighth day of the second month of the lunar calendar is the highest ancient custom for the Yi people to celebrate the new year and pay homage to the ancestors of the Yi people, "mico God". Two days before the "hulusheng Dance Festival", branches were used to block the crossing into the village, which is called "ZhaDaLu" and "FengZhai". And in the village's threshing ground, with pine to build a spacious "lifelike". Anyone can only go to Qianjin village, " Hulusheng Dance Festival", during which they are not allowed to go out. People kill chickens and sheep, and drink in the green shed. In the evening, all the men, women, old and young people and guests gathered at the bramble fire. After the leading men and old people worshiped and lit the fire, the men, women, old and young people would go on a song around the fire, revel all night, stay up all night, jump for three days in a row, and have a good rest[3].

2.3.2 WEIBAOSHAN CHAOSHAN FESTIVAL

WeiBaoShan Chaoshan Festival is the largest HuLuSheng Festival in many counties and cities in western Yunnan with Yi people as the main body. Every year from the first day of February to the 15th day of February in the lunar calendar, tens of thousands of people from all ethnic groups come to Weibaoshan to catch up with Chaoshan Association. HuLuSheng mainly worships the ancestors in the "Tuzhu Temple" of the Yi nationality; then it dances around the Wenlong Pavilion (painted with HuLuSheng Dance murals) in Wenchang officials all night long; on February 15, hundreds of Yi people, coincidentally, gather in the " HuLuSheng Dance field" in front of the "Chaoyang cave" temple in the back mountain and dance all night.

2.3.3 THE HULUSHENG OF "TORCH FESTIVAL"

The HuLuSheng of "Torch Festival" is a traditional Torch Festival of Yi people every June 25 of the lunar calendar. On this day, people from all over the county gathered in the county, surrounded by torches in stadiums, ancient building squares, parks and other places, drinking spirits, and hulusheng dance revealed until dawn.

2.3.4 HULUSHENG DANCE

HuLuSheng Dance when building a new house. When the wooden frame of a house is erected and the "floating beam" ceremony is held (the last beam at the top of the roof truss is installed), the host family also holds a banquet to reward the guests and friends. The singer is invited to hold the " HuLuSheng Dance " at home. At this time, the first song is "house repair song", and then other content. The procedures and forms of

other activities are roughly the same as those of marriage. The celebration of building new houses is generally smaller than the above two kinds. The above activities are usually held in winter and spring. The ups and downs in HuLuSheng Dance are the basic dynamics. On this basis, it can produce pitch, double tremor, stepping and sitting tremor. On the basis of fluctuation of basic dynamics, Cucurbita dulcis can also vary. If in passion, the chest slightly forward and backward force, that is, the formation of three-way bending flash.

3. CONCLUSION

It can be found that, on the one hand, it is almost the common motif (often starts from myths and legends, and then related to other arts) to express the feeling and sharing of human beings with the nature of heaven and earth, and the attachment and care of human beings to

the natural environment. HuLuSheng Dance of Yi nationality in Weishan, Dali Category, and the meaning is clearly inherited). The relationship between man and nature is the original proposition in the survival and development of each ethnic group, and it is also the root of its national art and national aesthetics.

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Research on the Legislation of Energy Enterprise Mixed Ownership Reform

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Abstract: With the increasing share of the energy market, the development of the market economy and the continuous improvement of the country's basic economic system, the reform of the mixed ownership of energy enterprises is urgent. At present, the National Development and Reform Commission and its General Office have issued policy documents such as the "Compilation of Taxation Policy Documents Related to the Reform of State-owned Enterprises' Mixed Ownership Reform" and the "Catalogue of Industries Encouraging Foreign Investment" to promote the reform process of energy enterprises' mixed ownership. However, since my country's current energy enterprise mixed ownership company supporting system has not yet been implemented, and the effective supply of the national energy enterprise mixed ownership reform legal system is insufficient, the original state-owned enterprises have historically interfered with enterprise management and state-owned capital's absolute control rights. In order to promote the reform and implementation of mixed-ownership energy enterprises, a supporting enterprise system should be established, the construction of relevant laws should be improved, and a mixed-ownership reform and development mechanism for energy enterprises should be established.

Keywords: Energy Enterprise; Mixed Ownership Reform; Dilemma

1. THE BASIC STATUS OF THE REFORM OF MIXED OWNERSHIP OF ENERGY ENTERPRISES

1.1 OVERVIEW OF MIXED OWNERSHIP

The 19th National Congress of the Communist Party of China proposed that "we must deepen the reform of state-owned enterprises, develop a mixed-ownership economy, and cultivate world-class companies with global competitiveness." The first aspect is to understand from the ownership structure of the national economy. China's basic economic system is Public ownership is the main body, and multiple ownership systems develop together." The mixed economic system introduces non-public capital on the basis of state-owned and collectively shared public ownership to develop a diversified economic system in this way. The second aspect is from the level of enterprise property rights structure. Understand that, in addition to the state-owned and collectively shared public components, there are also non-public

components such as private capital, foreign investment, and internal employee stock ownership. This system integrates public ownership and non-public ownership, and promotes the improvement of corporate efficiency and economic growth. development of. The so-called public-private partnership system refers to the advanced form of state capitalism adopted by China to implement socialist transformation of national capitalist industry and commerce. First, the two systems are in different national institutional economic environments. The establishment of the public-private partnership system was a transitional period from capitalism to socialism in the initial stage of our country's establishment. At that time, the national economy was weak and private capital was developing rapidly. It was a restructuring method to balance the local economy and the national economy. Because it is in the transitional period of our country's system transformation, the background of bourgeoisie is bound to be abolished. The mixed ownership system is in the context of socialism. In order to enhance the efficiency of state-owned enterprises, improve the management methods of state-owned enterprises and the status quo of monopolies in some industries, the state adopts the form of introducing private capital, foreign capital or internal employee shareholding to promote state-owned enterprises. The way of sound reform. Moreover, since the implementation of the pilot mixed ownership reform of state-owned enterprises in 2014, significant results have been achieved and have greatly promoted the maximization of corporate efficiency and the value of state-owned assets, which can achieve long-term development. Second, the problems to be solved by the two systems are different. The starting point for the implementation of public-private partnerships is to adapt to the direction of national economic development, so the market benefits brought by public-private partnerships are different from the original ones. The implementation of the mixed ownership reform system is to promote the rapid development and sound development of public capital enterprises, and combine the advantages of corporate management and employee incentive systems that absorb non-public capital with state-owned assets to achieve the goal of mixed and win-win. In addition, the two also have something in common, that is, both are economic systems established at the national level to adjust the economy.

1.2 BASIC STATUS OF THE REFORM OF MIXED OWNERSHIP OF ENERGY ENTERPRISES

The mixed ownership reform of my country's energy enterprises started from the first batch of enterprise pilot projects in 2016, and then when the first and second batch of mixed reform pilots began, the main energy sources involved electric energy, coal energy, etc., such as Southern Power Grid, China Nuclear Construction, China Petroleum, Sinopec, China National Offshore Oil Corporation and other mixed-ownership reforms are the main focus. In the third batch of mixed-ownership reform pilots in 2018, the SASAC has increased the proportion of mixed-ownership reforms in oil and gas resources and energy companies. The number of companies in the first two batches increased from 19 to 31 mixed-ownership reform companies. In 2019, the fourth batch of 160 pilot enterprises of mixed ownership reform was passed, which is a substantial increase compared with the previous number. It also reflects the phased success of the early stage of the mixed ownership reform pilot. At the same time, there are corresponding changes in the mixed ownership reform process. Problems such as serious administrativeization of state-owned enterprises, unreasonable use of state-owned assets, imbalances in the company's introduction of capital and equity, conflicts in employee placement benefits, and imperfect employee incentive systems. However, in 2018, the National Development and Reform Commission and other eight departments jointly formulated the "Policies on Deepening the Pilot Mixed Ownership Reform", which stipulated that they were state-owned asset pricing mechanisms, employee labor relations, land disposal and change registration, employee stock ownership, and group ownership. At the company level, mixed ownership reforms, pilot linkages, fiscal and taxation support policies, and total salary management systems have been carried out. The problems that have emerged have been treated in a macroscopic manner, and some specific regulations have yet to be implemented and applied. Therefore, the research on the dilemma and way out of the mixed ownership reform of energy enterprises still has practical significance.

2. THE DILEMMA OF MY COUNTRY'S ENERGY ENTERPRISE MIXED OWNERSHIP REFORM

The mixed ownership of energy enterprises is the product of the current era of rapid economic development and increasingly fierce market competition. The implementation of mixed ownership reform in energy enterprises is conducive to changing the status quo of state-owned capital "one share dominates", is conducive to strengthening the management mode of state-owned enterprises, is conducive to breaking the monopoly of some industries of state-owned enterprises, and is conducive to the maintenance and appreciation of state-owned capital of state-owned enterprises. Property right

structure adjustment. However, the pilot enterprises also exposed some problems in the reform process, mainly reflected in the following aspects.

2.1 STATE-OWNED ENTERPRISES ARE SERIOUSLY "ADMINISTRATIVE"

In the process of mixed ownership reform of energy enterprises, the senior managers of the former state-owned enterprises were directly appointed by the SASAC and the Party Organization Department through administrative means. Such an appointment method will not be able to examine the problems of management ability and enterprise management ability, and will make state-owned enterprises tend to be administrative, and administrative management will reduce the efficiency of state-owned enterprises' operation, and will also promote corruption and other phenomena. So how to "administrative" is currently a problem to be solved intensively. The phenomenon of administrativeization is a legacy of the property rights structure of the original state-owned energy enterprises. In response to this problem, we should collect more in practice the handling of China Energy Nuclear Construction Co., Ltd. in the practice of mixed ownership of energy enterprises. Therefore, the problem of de-administration of the former state-owned enterprises needs to be solved urgently.

2.2 THE CORRESPONDING SUPPORTING SYSTEM OF THE ENTERPRISE IS NOT PERFECT

2.2.1 THE ORIGINAL STATE-OWNED ENTERPRISE PROPERTY RIGHTS CHARACTERISTICS AFFECT ENTERPRISE MANAGEMENT

Whether the original state-owned enterprise has completed the mixed ownership reform after absorbing capital? In fact, this is just the beginning. If the introduced private capital has good management capabilities, but if the original state-owned enterprise's property rights characteristics are obvious, the operation and management have not really been transferred to the capital injection company or have not made active changes or adopted other remedial measures, such as the use of professional managers Employment system. Then, although the introduced capital has shareholder power and may also enjoy the status of the board of directors, the original state-owned enterprise did not protect the interests of majority shareholders or minority shareholders under the system of mixed ownership reform, and instead maintained a dominant or absolute controlling position. Taking the China Energy Nuclear Construction Group as an example, its use of relative holdings is based on the perspective of maintaining and increasing the value of state-owned assets and maximizing corporate benefits. Therefore, it has achieved good results in the mixed ownership reform. In addition, there is also the problem of employee placement after the restructuring. Whether the former state-owned enterprise and private enterprise employees should be managed together

under the same labor contract, or whether to retain the former state-owned enterprise benefits and housing insurance and other welfare guarantees, how to consider is also a problem that is difficult to give clear plans and measures. If the resettlement system is not perfect, it may cause the unemployment rate to fall in the process of mixed ownership reform or make the former employees of state-owned enterprises lose their motivation to work.

2.2.2 THE DIVERSIFICATION OF THE SHAREHOLDING STRUCTURE HAS NOT TRULY REACHED THE BALANCE OF SHAREHOLDING

First, whether the equity contribution is consistent with the equity of the holding and the board of directors. The original state-owned energy enterprises absorbed capital to achieve the diversification of the equity structure, but the diversification of the equity structure alone cannot fully achieve the goal of reform. The diversification of the shareholding structure is only the basis of reform, and then it is necessary to consider the proportion of equity contribution to the board of directors and the benefits of the entire enterprise on this basis. In addition, it is also necessary to consider whether each equity contribution is consistent with the equity of the holding and board of directors. On the basis of consistency, it will be more conducive to the effect of mixed ownership reform.

Second, the board system is not perfect. The board of directors system is mostly composed of representatives from all levels of investors. Will the board of directors reflect equal rights and reflect the interests of shareholders? In practice, many companies have encountered this problem and found that the board of directors is difficult to maintain and maintain the majority. The interests of shareholders and small shareholders are concentrated on larger shareholders. In addition, the supervisory mechanism for the board of directors is not perfect. The majority of shareholders may pass or vote on company matters, which mainly reflects the interests of major shareholders. However, due to the lack of supervision of the board of directors, the interests of most minority shareholders cannot be protected.

2.2.3 STATE-OWNED ENTERPRISES HAVE INSUFFICIENT REVIEW OF THE INTRODUCTION OF CAPITAL

After the original state-owned enterprise absorbs capital, it mainly chooses from two aspects: one is the reputation and capital strength of the capital injected enterprise in the industry; the second is whether the operation and management model and employee incentive mechanism of the capital injected enterprise are complete and scientific. Mainly choose capital injection companies from two levels. However, if the original state-owned energy company focuses on only one aspect of introducing capital, it may cause the mixed ownership reform to fail to achieve the expected

results, and ultimately maintain the level of the original state-owned energy company. progress. Therefore, when the original state-owned enterprise introduces capital, it should focus on capital financing and enterprise management, so that it can achieve the expected ideal state for the development and reform of the enterprise. Otherwise, focusing on one aspect alone will make the enterprise unbalanced development. If you only focus on financing and ignore corporate management, you will be full of funds, instead of bringing out the advantages of private capital in corporate management, and failing to achieve the result of mutual use of the advantages of both parties; if you only focus on corporate management and ignore financing. The limitation of the amount will result in insufficient funds for industrial development and scientific research equipment to follow up during the execution of enterprise management. Therefore, in view of the above problems, the comprehensive review of the capital introduced by the former state-owned energy enterprises should be strengthened.

3. THE LEGALIZATION CONSTRUCTION PATH OF THE MIXED OWNERSHIP REFORM OF ENERGY ENTERPRISES

In view of the many problems mentioned above in the mixed ownership reform process of energy enterprises, the author analyzes the solutions to the typical Beiyuan Chemical Industry's introduction of Shaanxi Coal's capital mixed ownership reform and China Nuclear New Energy Investment Co., Ltd. mixed ownership reform cases. The details are as follows.

3.1 SPEED UP THE STATE'S MACRO-CONTROL ON THE REFORM OF MIXED OWNERSHIP OF ENERGY ENTERPRISES

Since the "administrative" of the original state-owned enterprises is a legacy of the property rights issue, we should strengthen the legislation for the "administrative" of state-owned enterprises. At the same time, we should also make clear provisions for government intervention in the management and operation of enterprises. If the regulations are not clear or the problem persists, it will hinder or even stagnate the mixed ownership reform of energy companies. First, legislation should stipulate the limits of administrative intervention by governments directly under the jurisdiction of central enterprises and local state-owned enterprises. If, in practice, the company has improperly intervened in the management of the company, resulting in a decline in its profits or even losses, it can seek relief through legal channels. Second, the directly affiliated administrative agency does not impose policy "barrier restrictions" on enterprises in the mixed ownership reform due to administrative intervention restrictions. In terms of duties, the administrative agency is to exercise its powers within the scope of the law in accordance with the law, and ultra vires or improper interference is not

conducive to the implementation of national policies and reforms. At the same time, the administrative agency should not impose "policy obstructive implementation" on enterprises due to restrictions on powers. Therefore, the top-level design should be carried out in the "de-administrative" legislation of state-owned enterprises.

3.2 IMPROVE THE MARKET MANAGEMENT SYSTEM FOR ENTERPRISE-TO-ENERGY ENTERPRISE MIXED OWNERSHIP REFORM

Improving the market management system for enterprise-to-energy enterprise mixed ownership reform is to improve the relevant supporting systems after the company's reform. First of all, in the form of management, we should give full play to the advantages of equity-holding companies. The advantage of participating capital is in terms of corporate management and employee incentive systems. Then in the reformed energy companies, the management model of introducing capital can be fully utilized. This model is not single, it can also be combined with the professional manager system, and the former state-owned enterprise leadership can play a supervisory role. Secondly, in the work system, a professional manager system can be established. In the process of system establishment, the salary of professional managers and the limits of the scope of exercise of power shall be stipulated, so as to limit the limits of the rights of professional managers and facilitate their maximum management function. In practice, the decision-making of professional

managers and the management of the enterprise play a very good role in the development of the company. Finally, in the use of state-owned assets, we must follow the principle of cautious and reasonable. State-owned assets do not belong to individuals and do not belong to a specific enterprise. Therefore, in the process of using state-owned assets, a financial management and supervision mechanism should be established within the enterprise, which makes the decision of the company management more reasonable than facilitating evidence-based review and subsequent supervision. Utilize state-owned assets in order to realize the appreciation and preservation of state-owned assets and maximize the benefits of state-owned assets.

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Investigation and Research on The Present Situation of College Students' Extracurricular Physical Exercise

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Abstract: By means of questionnaire, mathematical statistics and literature, this paper investigates and analyzes the present situation of extracurricular physical exercise of XX college students. The results show that the attitude of XX college students to participate in extracurricular physical exercise is positive as a whole; The items selected to participate in after-school physical exercise are mainly simple sports that can be contacted in class; Among the motives of participating in after-school physical exercise, losing weight and modeling and coping with physical examination have become the main motives; Among the factors that influence participation in extracurricular physical exercise, different from other research factors, XX College students choose most because they have no suitable exercise partner and no persistent determination. Finally, in order to solve the existing problems, some targeted suggestions are put forward.

Keywords: College Students; After-School Physical Exercise; Investigation and Analysis

1. INTRODUCTION

In the 21st century, with a new era and new atmosphere, many new things have emerged, and people's concepts have undergone many changes. The rapidly improving living standards have also made people pay more and more attention to their health. Teenagers are strong, and they are the main group in building the motherland in the future. As the main group, the physical quality of college students is declining year by year, which has aroused widespread concern and needs to be solved urgently [1-12]. In order to solve this problem, many experts and scholars put forward many constructive opinions through investigation and research, which provided a lot of help for the development of sports in Table 1 Distribution and recovery of questionnaires

	Issued copies	Recovered copies	Valid questionnaire	Recovery rate (%)	Effective rate (%)
First year college students	120	112	102	93.3	91
Second year college students	120	108	94	90	87
Third year college students	120	102	91	85.3	89

According to the purpose of the study, 360 questionnaires were developed and distributed, including 120 freshmen, 120 sophomores and 120

China. At present, the situation of college students' extracurricular physical exercise has been greatly improved, but there are still many shortcomings, which are still a resistance to students' participation in physical exercise, which makes students' physical exercise often encounter bottlenecks and it is difficult to achieve the best results. Therefore, through the investigation and analysis of the present situation of students' participation in after-school physical exercise in XX College, we can understand the specific situation of students' participation in after-school physical exercise and some problems existing in the exercise process, and put forward concrete and feasible suggestions and countermeasures according to the actual situation, hoping to have a certain effect on improving students' physical fitness, and give some help to XX College students' after-school physical exercise and related physical education.

1.1 RESEARCH OBJECT

Students in XX College are selected as the research objects, and students in six colleges, three liberal arts colleges and three science colleges are selected as the investigation objects (departments: Education Science College, Liberal Arts College, School of Political Science and Law, School of Chemistry and Chemical Engineering, School of Mathematics and Statistics, School of Life Science and Agriculture).

1.2 RESEARCH METHODS

1.2.1 METHOD OF DOCUMENTATION

According to the needs of research background and content, this paper has consulted the published research results and documents in detail, and used libraries, electronic media and network to consult the relevant research materials, which provided a solid and reliable data basis for this study.

1.2.2 QUESTIONNAIRE SURVEY METHOD

Questionnaires were distributed to sampled colleges and collected. Among the valid questionnaires collected, there were 107 boys and 180

girls, as shown in Table 1.

1.2.3 INTERVIEW METHOD

According to the needs of the research, according to the prepared outline in the research process, by visiting the relevant physical education teachers, I asked their opinions and suggestions on the related issues of the questionnaire.

1.2.4 MATHEMATICAL STATISTICS METHOD

Table 2 Students' Participation in Extracurricular Physical Exercise

	Occasionally	Participate frequently	Never participate
total number	189	62	36
Percentage%	65.8	21.6	12.5

Table 3 Attitude towards participating in extracurricular physical exercise

Attitude	male	Percentage%	female	Percentage%
Very much	23	21.4	43	23.8
prefer	62	57.9	89	49.4
<u>unconcerned</u>	16	14.9	31	18.8
Dislike	6	5.6	17	9.4

In the survey of whether students often participate in after-school physical exercise, the collected valid questionnaires are analyzed. For example, Table 2 shows that there are 62 people who often participate in after-school physical exercise, and 189 people occasionally participate in after-school physical exercise, accounting for 21.6% and 65.8% of the total number respectively, but there are 36 people who never participate in after-school physical exercise, accounting for 12.5% of the total number. These data show an indisputable fact that there are a few students who are not so good at after-school physical exercise.

Table 4 Sports events that students often participate in after school (top 8)

ranking	Projects	male	female
6	Aerobics	3	34
2	Basketball	104	16
5	Volleyball	13	21
8	Football	34	0
4	Badminton	27	32
7	Tennis	16	13
3	Table tennis	49	28
1	Running	98	102

According to the ranking of students' selection items shown in Table 4, students have chosen ball games and sports that can be participated without high competitive ability. The selection of students' exercise items can reflect the practical operation ability of XX College students in extracurricular physical exercise and the mastery of students' knowledge in physical education classes to a certain extent. The data in Table 5 shows that the top 8 students choose the most sports, among which basketball, running, table tennis and football rank first for boys and running, aerobics, badminton and table tennis rank first for girls. The sports selected by boys, such as basketball and football,

Summarize, compare and synthesize the data collected by the questionnaire, and finally make a logical analysis of the statistical results.

2.RESULTS AND ANALYSIS

2.1 XX COLLEGE STUDENTS AFTER-SCHOOL PHYSICAL EXERCISE STATUS

2.1.1 STUDENTS' PARTICIPATION IN EXTRACURRICULAR PHYSICAL EXERCISE

As shown in Table 3, the attitudes of boys and girls towards participating in after-school physical exercises are mostly like, but few do not like. Attitude towards a thing determines the success of a thing to a great extent. The result survey shows that the attitude of college students in XX College towards after-school physical exercise is positive and optimistic, and most students are full of enthusiasm and passion for after-school physical exercise. This is a good start, and a good start has already been half successful.

2.1.2 SPORTS EVENTS THAT YOU OFTEN PARTICIPATE IN AFTER SCHOOL

are team battles involving many people, full of passion and confrontation, which are in line with the characteristics of active, competitive and energetic boys. The most representative sports selected by girls are aerobic sports such as running and aerobics. Because of the difference in physiological basis between men and women, girls do not have the same physical quality as boys, and most of them choose sports that are easier and less intense and gentle. Running is boring, but as a simple and basic activity ability, anyone can participate in it, which is a sport with a high common choice rate for boys and girls. The survey shows that students' sports choices tend to be

consistent, which is related to their current psychological characteristics and attitudes towards physical exercise.

2.1.3 THE MOTIVATION TO PARTICIPATE IN EXTRACURRICULAR PHYSICAL EXERCISE

Table 5 Motivation of participating in extracurricular physical exercise

The purpose of physical exercise	male	Percentage%	female	Percentage%
Physical fitness	57	53.2	16	8.8
To cope with the physical examination	6	5.6	39	21.6
Entertainment, making friends	28	26.1	13	7.2
Lose weight or build a body	12	11.2	89	49.4
Relaxation activities during stress reduction	3	2.8	17	9.4
Other	1	0.9	6	3.3

Table 5 shows that there are differences between boys and girls in their motivation for extracurricular physical exercise, and the most motivation for boys to participate in extracurricular physical exercise is to keep fit. Among them, 57 people chose to keep fit, accounting for 53.2% of the total number of boys. The most motivation for girls to take part in extracurricular physical exercise is to lose weight or build their body shape, and to cope with the physical examination. Among them, 89 people chose to lose weight or build body, accounting for 49.4% of the total number of girls. The investigation shows that the motivation of boys to participate in extracurricular physical exercise is to strengthen their physique and improve their health. Everyone has the heart to love beauty, and both boys

and girls have the motivation to lose weight or build their bodies, among which girls have stronger requirements. Coping with physical examination is also a factor of girls' after-school physical exercise. Because of the decline of college students' physical quality and the difference between male and female students' physique, it is relatively difficult for girls to take physical examination, which requires more efforts. Therefore, coping with examination plays an important role in the motivation of participating in after-school physical exercise.

2.1.4 THE TIME AND FREQUENCY OF PARTICIPATING IN EXTRACURRICULAR PHYSICAL EXERCISE

Table 6 Frequency of participating in extracurricular physical exercise every week

frequency	male	Percentage%	female	Percentage%
Less than 1 time	9	8.4	27	15.0
1-2 times	38	35.5	109	60.5
3-5 times	46	42.9	42	23.3
More than 5 times	14	13.7	2	1.1

Table 7 Duration of taking part in extracurricular physical exercise

Time	male	Percentage%	female	Percentage%
Less than 30 minutes	9	8.4	103	57.2
30-60 minutes	52	48.5	69	38.3
Over 60 minutes	46	42.9	8	4.4

The data in Table 6 shows that the frequency of boys participating in extracurricular physical exercises every week is 3-5 times, accounting for 46% of the total number of boys. Girls participate in extracurricular physical exercises once or twice a week, accounting for 60.5% of the total number of girls. More than half of the girls' exercise frequency is less than that of boys once or twice a week. Some people have found that the most suitable exercise frequency is 3-4 times a week, but the exercise frequency of girls mostly concentrates on 1-2 times a week, which fails to reach the reasonable target and makes it difficult to achieve the purpose of physical exercise.

In the duration of each exercise shown in Table 7, the duration of boys' participation in extracurricular

physical exercise is concentrated in 30-60 minutes, while the duration of girls' participation is mainly less than 30 minutes. However, in the sports population standard of exercising more than three times a week, and each exercise time is not less than 30 minutes, most of the girls do not meet the standard in terms of exercise frequency and persistence time, which has little effect on promoting their health. Compared with girls, boys take part in extracurricular physical exercises more often and last longer, which is closer to the standard of sports population.

2.1.5 THE ORGANIZATIONAL FORM OF PARTICIPATING IN AFTER-SCHOOL PHYSICAL EXERCISE

Table 8 investigates and analyzes the organizational forms of students participating in after-school physical

exercise in XX College. It is found that students in XX College show obvious concentration in choosing the organizational forms of participating in after-school physical exercise. Together with classmates or friends, they become the first organizational form jointly selected by boys and girls, among which 89 are boys, accounting for 83.1% of the total number of boys and 141 are girls, accounting for 78.3% of the total number of girls. There are 11 boys and 19 girls who take part in extracurricular physical exercises alone, accounting for 10% and 10.7% of their total number respectively. The results of this survey show that this tendency in

Table 8 Organizational form of participating in extracurricular physical exercise

Form	male	Percentage%	female	Percentage%
Alone	11	10	19	10.5
With classmates or friends	89	83.1	141	78.3
Only participate in the unified activities of classes or schools	7	6.5	20	11.1

2.2 factors affecting participation in after-school physical exercise

After investigation, it is found that the main factors that affect the students' participation in extracurricular physical exercise in XX College are: lack of suitable exercise groups and partners, lack of persistent determination and time-consuming surfing the Internet in peacetime, etc., lack of venue equipment, more courses and heavy homework, lack of professional

Table 9 Factors Affecting Participation in Extracurricular Physical Exercise

Factor	male	Percentage%	female	Percentage%
Lack of field equipment	13	12.1	9	5.5
There are many courses and heavy homework	5	4.6	12	6.6
Lack of professional skills in exercise	8	7.4	2	1.1
It usually takes a lot of time to surf the internet	22	20.5	13	7.2
Social work is busy	3	2.8	3	1.6
Frail	9	8.4	16	8.8
There is no suitable exercise group or companion	62	57.9	89	4.4
There is no determination to persevere	98	91.5	123	68.3
Other	19	17.7	26	14.4

2.2.1 SUBJECTIVE FACTORS

The data in Table 9 shows that there is no persistent determination to be the first factor that affects the participation in extracurricular physical exercise, including 98 boys and 123 girls. The reason why the number of people choose this factor is because of the characteristics of sports, and the realization of sports functions requires a process, and it is not only necessary to participate in sports activities to achieve the desired results, so many students are discouraged when they fail to get the desired return. Students who take part in after-school physical exercise tend to cause the struggle and fluctuation of motivation in two aspects: First, in overcoming fatigue, students often waver in overcoming fatigue points, and the double fatigue of body and mind easily makes students give up. Second, in overcoming dangerous movements,

the choice of exercise organization reflects that college students take extracurricular physical exercise as an opportunity for students to communicate with each other, contact their feelings and establish good interpersonal relationships. Not many students take part in after-school physical exercise alone, which shows that many students are afraid of loneliness, always want to find someone, and lack the necessary independence. Of course, the result of this selection is related to some inherent characteristics of sports events, such as collective events and individual events, competition and cooperation, etc.

skills in exercise, busy social work, physical weakness, etc. This shows the uniqueness of the factors that affect the participation of XX college students and other college students in extracurricular physical exercise. Most of the other research conclusions focus on the main factors that affect students' participation in extracurricular physical exercise, such as insufficient facilities, heavy study and lack of time.

students often lack confidence and fear of injury in difficult movements, and often dare not or are unwilling to contact this project; Also, it is an important subjective factor to spend more time surfing the Internet at ordinary times. "Low-headed people" can be seen everywhere, spending more and more time on mobile phones and computers, and naturally taking less time to exercise.

2.2.2 OBJECTIVE FACTORS

All kinds of venues and facilities in XX College are relatively perfect, and there are common sports venues, but there are two extreme situations, that is, some venues are idle and hot sports venues are not enough, which is an important reason that affects participation in after-school physical exercise. Lack of professional skills and teachers' guidance, many students want to exercise, but lack of professional knowledge of

physical education has wiped out many enthusiasm for participating in physical exercise. Most students participate in projects that they have had contact with in class, so it is difficult to broaden their horizons.

3.CONCLUSIONS AND SUGGESTIONS

3.1 CONCLUSION

3.1.1 THE ATTITUDE IS GENERALLY GOOD

Most of the students in XX College have positive attitudes towards extracurricular physical exercise, and have great enthusiasm for extracurricular physical exercise. There are a small number of students who never take part in after-school physical exercise, and physical exercise is limited to physical education class.

3.1.2 GIRLS' ENTHUSIASM IS NOT HIGH

Running and ball games have become the sports chosen by both boys and girls when the students in XX College take extracurricular physical exercises. Jogging is often the main sport for running, and some girls have become walking instead of running.

3.1.3 INSUFFICIENT LOAD

The development of physical fitness needs to be achieved through excessive recovery after high-intensity exercise. However, the duration and frequency of exercise of XX College students are not high, and the exercise intensity is not enough to cause subsequent excessive recovery, which has little effect on improving various physical qualities.

3.1.4 THERE ARE LIMITATIONS IN PROJECT SELECTION

XX College students' choice of after-school physical exercises focuses on the items that are easy to master in physical education class, with ball games in the majority. Students' choice of events also indirectly shows that students now have a strong sense of self-protection, and consciously avoid events with large difficulty coefficient in sports.

3.1.5 STUDENTS' PARTICIPATION MOTIVATION IS DIFFERENT

The motivation of the students in XX College for extracurricular physical exercise has its own characteristics. Extracurricular physical exercise plays a special role in promoting their physical and mental health, eliminating stress and relieving bad emotions, which most students can recognize and actively participate in with a positive attitude.

3.1.6 LACK OF INDEPENDENCE AND SELF-CONTROL

The main factors affecting students' participation in extracurricular physical exercise are lack of persistent determination, lack of suitable exercise groups and partners, and time-consuming surfing the Internet at ordinary times.

3.2 SUGGESTIONS

3.2.1 STUDENTS THEMSELVES

Although there are many factors that affect students' participation in extracurricular physical exercises, the most important one is the students themselves. It is necessary to have a correct understanding of physical

exercise and correct the attitude of participating in physical exercise. The more positive the attitude of exercise, the better the duration and effect of exercise. At the same time, we should have persistent determination. Physical exercise is not a short-term activity, but requires a long time of experience and investment to achieve the desired results. Students should also have self-control. Physical exercise is their own behavior. They should not only rely on the supervision of others, but also rely on self-control to make physical exercise a lifelong habit.

3.2.2 SCHOOLS AND TEACHERS

Schools have the responsibility to educate and influence students' sports ideas, so that the idea of "health first" is firmly rooted in students' ideas, and vigorously publicize the power of sports. In order to renew the concept and make good arrangements for the development of school physical education, the curriculum design should have scientific basis and be formulated according to the specific situation of students, focusing on the development of students. The content of extracurricular activities should be diversified, not static, and students should change from having to participate in sports activities to loving participating in sports activities. We must pay enough attention to the construction, transformation and utilization of school sports facilities, and give full play to the maximum benefits of the venues. Teachers should be good guides and instructors for students to participate in exercise in daily work such as physical education teaching, counseling and training, and help students to truly understand physical education in the process of forming good exercise habits.

3.2.3 SOCIETY

It is necessary to continuously deepen the reform of physical education, develop and improve the evaluation system of students' physical health, so as to better combine qualitative evaluation with quantitative evaluation, and not let coping with examinations become the only purpose of students participating in physical exercise; Create a good atmosphere of actively participating in physical exercise in the whole society, so as to influence students' sports thoughts.

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Influence of Aerobics Training on Physical Self-esteem of Female College Students

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Abstract: In order to reveal the characteristics and laws of aerobics exercises on female college students' physical self-esteem, and to analyze the correlation between physical self-esteem and aerobics technical achievements, this paper reveals how physical self-esteem affects aerobics achievements. In this paper, 50 female college students in Zhoukou normal university were trained in aerobics. It is a measure of the physical and mental influence of aerobics exercise before and after training by using the Physical Self-esteem Scale. The results show that through eight weeks of moderate-intensity aerobics exercises, female college students' self-esteem level has been significantly improved, and their body shape and mental state have also been positively affected.

Keywords: Female College Students; Aerobics Exercises; Physical Self-Esteem

1. INTRODUCTION

With the development of society, aerobics has become popular all over the world in recent decades. Aerobics is a popular aerobic exercise, which is deeply loved by the masses. As a new sport, it is deeply loved by college students with its distinctive rhythm and changeable movement characteristics. Physical self-esteem is an individual's satisfaction or dissatisfaction with different aspects of the body. With the development of society, people put forward higher requirements for their own qualities in all aspects, and people pay more and more attention to their mental health. Some research results show that college students do have psychological problems of different degrees, and their psychological health has become a problem that can not be ignored [1-13].

In this paper, the changes of college students' physical self-esteem are known through experiments and questionnaires. The physical self-esteem scale (PSPP) is used to measure the influence of aerobics exercise on their body and mind before and after training. This paper reveals the characteristics and laws of body self-esteem of college students studying aerobics, and provides theoretical reference for the perfection of their personality and the improvement of body self-esteem. Through the correlation analysis between aerobics technical achievements and physical self-esteem, this paper reveals the influence of physical self-esteem on aerobics achievements, and seeks for the rules.

1.1 RESEARCH OBJECT

Taking the influence of aerobics exercise on female college students' physical self-esteem as the research object, 50 students who volunteered to participate in aerobics exercise were recruited in Zhoukou normal university. See table 1 for the age distribution of students.

Table 1 Age distribution of female college students voluntarily participating in aerobics exercises (N=50)

Age (years)	19-20	21-22	23-24
number	11	23	16
Percentage	22%	46%	32%

1.2 RESEARCH METHODS

1.2.1 METHOD OF DOCUMENTATION

Through literature search and internet search, a large number of related materials and books about the research of aerobics on college students' physical self-esteem are consulted.

1.2.2 EXPERIMENTAL METHOD

Carry out moderate-intensity aerobics exercises three times a week, one hour each time, and the exercises last for eight weeks. The physical self-esteem scale was used to measure the influence of aerobics exercise on their body and mind before and after 8 weeks.

1.2.3 QUESTIONNAIRE SURVEY METHOD

In this survey, 50 students were recruited by means of questionnaire, and with the help of teachers, they practiced moderate-intensity aerobics three times a week for one hour each time for eight weeks. The physical self-esteem scale was used to measure the influence of aerobics exercise on their body and mind before and after training. To evaluate the level of physical self-esteem, this paper adopts the Physical Self-esteem Scale (PSPP) revised by scholar Xu Xia in 2001. The results showed that the Cronbach coefficient of the Physical Self-esteem Scale and its subscales ranged from 0.72 to 0.84. These results show that the physical self-esteem scale has good reliability and validity.

1.2.3 MATHEMATICAL AND STATISTICAL METHODS

In this study, a database will be established for the data collected before and after the experiment, and the statistical data of the questionnaire will be statistically analyzed by SPSS12.0, and the related tables will be drawn.

2. RESULTS AND ANALYSIS

2.1 DESCRIPTIVE STATISTICS OF PHYSICAL SELF-ESTEEM OF PRE-EXPERIMENT STUDENTS

Before the experiment, the body self-esteem scale was used to measure the body self-esteem of 50 subjects, and descriptive statistics were made to make the subjects give accurate evaluation and objective

understanding of their own body self-esteem. It also compares the changes of physical self-esteem after the experiment.

Table 2 Descriptive statistical analysis of physical self-esteem of subjects before experiment

Dimensions	Minimum value	Maximum value	mean value	Standard deviation
Exercise ability	2	17	15.61	.52583
Physical condition	1	18	15.94	.50641
Physical attraction	2	20	18.39	.31652
Physical fitness	3	16	15.83	.44621
Physical Self-worth	2	17	16.06	.43125

Table 2 shows that the average score of the subjects' physical self-esteem is 16.06, which indicates that the subjects' physical self-esteem level is low. From the five dimensions of physical self-esteem, the highest score is 18.39; Then the sense of physical self-worth is 16.06; The average values of sports ability, physical condition and physical quality are 15.61, 15.94 and 15.83, respectively. This shows that the physical attraction and self-worth of the subjects are better than the sports ability and physical quality. The physical

condition and physical quality are low. The subjects think that they are in poor health, lack of self-confidence, are unwilling to take part in sports, and doubt whether their physique can take part in sports.

2.2 descriptive statistics of physical self-esteem after experiment

After eight weeks of moderate-intensity aerobics training, the five dimensions of the subjects' physical self-esteem also changed accordingly. See table 3

Table 3 Descriptive statistical analysis of physical self-esteem status of subjects after the test

Athletic ability	5	21	18.11	.62421
Physical condition	6	23	18.33	.57678
Physical attraction	4	22	20.22	.40641
Physical quality	5	20	17.56	.50325
Physical self-worth	6	21	17.83	.49153

The results in Table 3 show that the average values of five dimensions of physical self-esteem have increased after the experiment. Among them, the average score of the subjects' physical self-esteem is 17.83, which is higher than that before the experiment. The highest score is 20.22, which shows that the exercise ability of the subjects has been improved obviously after the test. The second score is that the physical condition is 18.33, and the sports ability of the subjects has been improved and their physical fitness has been improved accordingly. The physical condition and physical attraction were also

significantly enhanced compared with those before the experiment. Self-confidence is improved, physical quality is improved, and research subjects are more willing to participate in sports.

2.3 AEROBICS ON THE PHYSICAL SELF-ESTEEM OF FEMALE COLLEGE STUDENTS

By comparing the scores of the subjects' physical self-esteem, the results show that after 8 weeks of moderate-intensity aerobics training, each subject's physical self-esteem has changed significantly, specifically in all dimensions of physical self-esteem. See table 4

Table 4 Total score of physical self-esteem before and after experiment and average, standard deviation and nonparametric test of each dimension

variable	Before the test	After the test	D	Z	P
Self worth	15.61	18.11	2.50	-2.786	0.005**
Athletic ability	15.94	18.33	2.39	-2.914	0.004**
Physical condition	18.39	20.22	1.83	-2.493	0.013*
Physical Attraction	15.83	17.56	1.73	-2.134	0.033*
Physical quality	16.06	17.83	1.77	-1.968	0.049*
Total PSPP score	81.83	92.06	10.23	-3.007	0.003**

Note: "*" is P<0.05, significant difference; "**" is P<0.01, very significant difference

Table 4 shows that before and after the experiment, physical self-worth increased by 2.5, athletic ability increased by 2.39, physical condition increased by 1.83, physical attraction increased by 1.73, and physical quality increased by 1.77. Five dimensions of

physical self-esteem have been improved. The biggest change is the body's sense of self-worth, followed by sports ability, the third is physical condition, the next is physical quality, and the smallest is physical attraction. The average total score of PSPP before and

after the experiment changed from 81.83 to 92.06, increasing by 10.23. There is a highly significant difference in the total score of physical self-esteem before and after the experiment ($P < 0.01$), and there is a highly significant difference in every dimension, which is significantly higher after the experiment than before the experiment. After eight weeks of aerobics exercises, all dimensions of body self-esteem have been improved, and all dimensions have highly significant changes. It shows that a period of aerobics exercise can effectively improve the physical self-esteem of female college students.

The purpose of this experiment is to observe the changes of female college students' physical self-esteem level in the whole exercise process. With the extension of aerobics exercise cycle, the effect of college students' physical self-esteem level is better. Especially, the sports ability changes significantly, and the sense of physical self-worth also changes greatly. Different female college students have different scores before and after the experiment. Aerobics exercises stimulation and body-building function with appropriate intensity, which can stimulate female college students' enthusiasm for actively participating in training. In this experiment, moderate-intensity aerobics training has obvious influence on improving female college students' sports skills and physical fitness. The main reason is that aerobics exercise can achieve greater exercise load, consume excess fat in the body and improve body shape in the wonderful music accompaniment and relaxed atmosphere, thus enhancing the feeling of physical attraction and improving the level of physical self-esteem.

Therefore, the experiment proves that through a period of aerobics exercise, female college students can change their body shape from the heart and get relatively different changes in their bodies, which also makes us female college students have a better understanding of physical self-esteem.

3. CONCLUSIONS AND SUGGESTIONS

3.1 CONCLUSION

after eight weeks of moderate-intensity aerobics training, students' sense of physical value, physical attraction, athletic ability, physical quality and physical condition have been significantly improved. This is because physical self-esteem is closely related to social evaluation and is greatly influenced by psychology, physiology, sociology and other disciplines and living environment. Aerobics is loved by contemporary female college students who pursue health, happiness and beauty because of its distinctive rhythm and changeable movements. Combined with good teaching mode and means, and controlling the frequency, duration and intensity of exercise, scientific and reasonable aerobics training can be used as an important tool to improve students' physical consciousness in colleges and universities.

Through eight weeks of moderate-intensity aerobics

exercises, it can not only form a good body shape, but also have a positive impact on people's psychological state. It is found that aerobics can effectively reduce physical stress, promote physical and mental health, and improve the physical self-esteem level of ordinary female college students. Eight weeks is not a long time, but it can positively promote the physical self-esteem of female college students. Good physical self-esteem requires long-term exercise persistence.

Aerobics exercises can improve body self-esteem and aerobics performance. The result of aerobics is closely related to sports ability and performance ability. Persisting in long-term aerobics exercise can not only improve athletic ability, but also reduce stress, relax and enhance self-confidence so as to improve their performance ability.

3.2 SUGGESTIONS

It is suggested to establish aerobics clubs and societies for college students in colleges and universities, strictly control the professional quality and teaching plans of aerobics coaches, standardize aerobics classes, increase students' communication opportunities and cultivate their good habits of lifelong exercise.

It is suggested to establish a aerobics competition system for college students in colleges and universities, which can be divided into professional groups and amateur groups, individual groups and group groups, set awards to mobilize college students to actively participate, and improve their self-esteem and reduce the pressure of study and life through competition performances.

Because the level of physical self-esteem is the result of five dimensions: physical self-worth, athletic ability, physical condition, physical attraction and physical quality, it is necessary to strengthen the training of physical attraction dimension closely related to physical shape, appearance and temperament according to the gender characteristics of girls in college classroom. Attract more girls to participate in sports.

In aerobics classes in colleges and universities, teachers should design teaching content and exercise intensity reasonably and effectively. After a period of study, we can organize students to actively communicate and stick to the changes brought about by aerobics. Organizing students to actively communicate and discuss can not only enhance students' feelings, but also stimulate students' practice enthusiasm.

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The Role of Information Construction in Promoting the Fine Management of Hospital Finance

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Abstract: With the rapid development of computer network technology, information construction has become an important work content and development trend in hospital financial management. Through the application of information technology, it can promote the fine management of hospital finance to be better implemented, and improve the efficiency of management. This paper analyzes and discusses the related problems of information construction and hospital financial fine management, in order to provide some practical experience for the development of practical work.

Keyword: Informatization Construction; Hospital Financial Management; Fine Management

1. INTRODUCTION

The development of hospital financial management has the characteristics of strong professionalism and complexity, which has high requirements for the professional ability of financial management personnel. By carrying out information construction, we can further meet the requirements of hospital financial work in the new era, improve work efficiency, accuracy and reduce work costs. Through the application of information technology, it has also improved the level of financial management, applied a lot of new management models and methods, and achieved some results. In the current situation that the goal of hospital financial refined management is put forward, through information management, it can better adapt to all aspects of financial management, meet all standards of refined management, and do a good job in related work has an important role in promoting [1-6].

2. THE POSITIVE EFFECT OF INFORMATION CONSTRUCTION ON THE FINE FINANCIAL MANAGEMENT

In the work of hospital internal management and medical treatment, there are more financial information. The application of information management can further meet the needs of the actual management work. Every financial work can be recorded in the form of data, which provides a detailed basis for the follow-up work of financial accounting, and is an important implementation guarantee of financial fine management. Through the application of information management, digital management is

realized. The use of computers to replace the traditional repetitive and a large number of manual operations improves the efficiency of financial work, so that information can be better stored, queried, modified and transmitted. Through the use of computer to store financial data, this also replaces the traditional paper vouchers, statements and so on. In the process of data query, financial staff can get the required data faster. Through the computer to process the data, it also avoids the loss of all kinds of vouchers and reports and the malicious modification of human beings, which is very important and significant for the realization of the goal of fine management. At the same time, the application of information management, it also realizes the centralized management of financial data information. In the past, financial information management was relatively scattered. In the process of data collation, related managers are prone to a series of problems, which leads to information isolation. Through the way of information management, it can achieve centralized management. With various servers and professional financial management software, all kinds of financial information in the whole hospital can be better integrated. With computer network technology and cloud computing technology, these data can also realize remote sharing and docking. This provides a better basis and support for the follow-up financial accounting work, and with modern office technology, it can carry out more accurate management. It can be said that the application of information construction has greatly promoted the level of hospital financial management, and it is also the necessary means and measures to ensure the realization of refined management requirements.

3. THE DEFICIENCY OF INFORMATION CONSTRUCTION IN THE DEVELOPMENT OF HOSPITAL FINANCIAL MANAGEMENT

In the process of hospital financial management, there are still some problems to be solved in information construction. First of all, the related hardware and software equipment need to be updated. Some hardware equipment has been used for a long time without timely maintenance and replacement. There are certain risks and hidden dangers in the operation process. With the development of the times, the version of financial management software applied by some

hospitals has not been updated in time, and the relevant functions are relatively old, which is difficult to meet the requirements of the development of modern hospital financial management. Secondly, there are some deficiencies in the application of information data. From the perspective of fine management, it needs more comprehensive financial data. However, in the application of some specific financial data information, it does not play its due role, and does not play its due role and value in the decision-making of various work. Finally, the professional ability of relevant personnel needs to be improved. In the process of information construction, the application of some new financial management methods and equipment requires financial management personnel to have good financial business knowledge and ability, as well as some operation skills of information network technology. At present, the number of talents with good compound ability is relatively small in the composition of financial management team. How to carry out relevant training activities in time and effectively, and introduce more professional talents, is an important determinant of the effectiveness of information construction.

How to better play the role of information construction in the fine management of hospital finance

First, to promote the quality of financial management personnel by information construction. In the process of information construction, it puts forward higher requirements for the professional quality of financial management personnel. We should provide a good training platform for the relevant management personnel, so that they can better grasp the information technology, but also from the perspective of financial refined management, do a good job in their own work optimization, improve professional quality level, play a more important role in their own positions.

Second, better application in management decision-making. Financial data information is very important for hospital management decisions. In the process of information construction, we should do a good job in the collection and sorting of relevant data, and combine with the needs of relevant decision-making, timely provide the corresponding basis and basis for it, improve the scientificity of hospital management decision-making, so that the financial refined management can play its due role.

Third, integrate resources. Financial information data is a very important resource for the management and development of the hospital. In view of this, the financial management department should carry out reasonable integration and classification of relevant resources from the perspective of fine management. Combined with the needs of various management work for financial data, do a good job in data arrangement and planning, so that data resources can be better shared and utilized.

Fourth, the optimization of financial

management. From the perspective of information construction, an integrated information management system and platform is indispensable for the better realization of financial refined management. Through the application of the integrated management platform, collect, process and analyze all kinds of information in time, analyze and compare the budget implementation progress, budget data, budget implementation results and other data during the current hospital financial work, and do a good job in assessment and rating from the perspective of refined management. For example, through the application of an integrated information management system to respond to the current outpatient and inpatient charges, drug sales and other information, the relevant financial management personnel can combine the corresponding data to analyze the actual business situation, and combine the existing resources of the hospital for subsequent adjustment, which is conducive to the long-term development of the hospital. For another example, for drug management, through information construction, to achieve refined management, to comprehensively grasp the name, production date, quantity, manufacturer, batch, validity period, price and other information of drugs, to effectively schedule and supplement by grasping the inventory situation, to avoid drug shortage, and to improve the utilization efficiency of funds. Fine financial management is a new focus and research direction in the current hospital financial management work. We should combine the needs and characteristics of the actual financial information management, optimize the management level, and improve the level and effect of the hospital financial fine management.

5. CONCLUDING

In general, in the process of carrying out the fine financial management of the hospital, information construction is the key, and it is also an important measure to achieve the goal of the fine financial management. The financial management department of the hospital should make in-depth analysis and Thinking on the application of information technology in combination with the needs of financial refined management, make good use of relevant technologies in combination with the actual situation of the hospital, give full play to the due value of information technology, promote the improvement of the financial management level of the hospital, and drive the hospital to achieve better development.

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Application of Design and Construction Strategy of Civil Engineering Structure in Civil Engineering Technology

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Abstract: With the development of economy and the acceleration of urbanization, the construction of civil engineering also increases, so the requirement of construction quality is higher and higher. The factors that affect the quality of civil engineering include the design method and construction strategy of the structure, which are related to the planning of the whole construction project. Therefore, it is necessary to conduct a comprehensive and in-depth analysis on the structural design and construction strategy to ensure the construction quality and construction safety. In view of this, this paper briefly describes the civil engineering structure, and on this basis discusses the civil engineering structure design and specific construction strategy, aiming to improve the management efficiency of China's construction industry as a whole, and provide reference for construction.

Keyword: Wood and Soil Engineering; Engineering Structure; Design Scheme; Construction Strategy; Civil Engineering Technology

1. CIVIL ENGINEERING CONCEPT

In the construction engineering, civil engineering as an important branch, involves a wide range of contents, and in the process of engineering construction, it also needs to be implemented in strict accordance with the relevant requirements. Due to the complexity in the civil engineering construction process, the field test and test work is more difficult, for the underground engineering, foundation and tunnel engineering stress belongs to real-time data, as time goes on, the relevant test work needs to be carried out again, so as to ensure the scientific and reasonable engineering hypothesis. However, in large bridge engineering and high-rise building engineering, it is necessary to analyze and study the seismic and wind resistance performance of the project in detail before construction, so as to better Innovate Engineering Technology and theory. This requires the relevant departments to give it a high degree of attention, in the structural design and construction strategy for scientific coordination, to ensure that the project construction quality can meet the quality standards [1-7].

At present, in civil engineering, it mainly involves two aspects. One is that civil engineering covers the whole

process of construction, that is, the construction technology and technology of each link in the process of construction project exploration to completion acceptance. Secondly, the civil engineering can be divided into livelihood engineering, municipal engineering and bridge engineering. Civil engineering involves a wide range of contents and scope in the actual construction. With the acceleration of urbanization and the development of science and technology in recent years, the number of civil engineering projects has gradually increased, and has become the expenditure industry in China. With the increase of projects and the development of technology, civil engineering has been constantly expanding its field of involvement. In addition to the basic project construction of hydropower and earthwork, it also includes some professional contents, such as engineering mechanics and geological exploration. In addition, it is also necessary for relevant personnel to strictly control building materials and project budget, so as to gradually form an independent comprehensive discipline. The perfect civil engineering structure design scheme can meet the needs of residents' life and production to a great extent, and can also provide a more comfortable living environment for them.

2. STRUCTURAL DESIGN OF CIVIL ENGINEERING

At present, reinforced concrete has become the main part of civil engineering structure design because of its high durability and stability. At the same time, because of its good bearing capacity in the process of practical application, it has been widely used in the construction industry. However, in the construction process, the existing technology in China is difficult to accurately grasp the quality of reinforced concrete. In order to solve such problems, it is necessary for relevant personnel to comprehensively grasp the actual situation of the construction site in the link of structural design, effectively analyze the selection standard of reinforced concrete, and formulate scientific and reasonable construction strategy and technology according to the actual situation of the construction site. In the overall quality control of the project.

In civil engineering, as a very important construction material, reinforced concrete has been widely used in

water conservancy, housing engineering, road and bridge engineering. Although it has high stability and durability in practical application, relevant personnel still need to calculate the bearing capacity of normal section and inclined section, crack design and durability in strict accordance with relevant standards, so as to maximize the seismic performance and ductility of reinforced concrete. In addition, in different civil engineering, the requirements of reinforced concrete structure, quantity, size and shape are different, which will change the overall structure of reinforced concrete accordingly. At present, in the civil engineering construction, it is necessary to focus on the long-span and high-rise reinforced concrete structure, which puts forward higher requirements for the stability, design and dynamic characteristics of the whole reinforced concrete structure.

3. CIVIL ENGINEERING CONSTRUCTION STRATEGY

3.1 MATERIAL SELECTION AND CONNECTION

At present, in the process of civil engineering construction, the selection of steel is mainly divided into four different forms: plate, profile, metal products and pipe. Due to the high hardness and strength of steel structure, it has been widely used in civil engineering construction. Generally speaking, in the application of steel structure, the column section is mostly box section or "I" shape and "cross" shape section; the beam is mostly welded or rolled "H" shape steel beam, which can meet the special requirements of different projects. However, it should be noted that the construction personnel need to carry out welding process test on the welded joint before installation, mainly to determine the welding grid material and various parameters. In addition, welding or high-strength bolts can be used to connect beams and columns, but attention should be paid to the accuracy of high-strength bolt connection holes. Hole making includes two forms: high precision CNC drilling and low precision template drilling. Under the same construction technology, relevant personnel also need to test the steel related parameters in detail. Only in this way can we ensure that the actual installation process can be driven in accordance with the requirements and ensure the normal construction.

3.2 CONCRETE CONSTRUCTION

In the process of concrete construction, construction enterprises need to comprehensively combine the engineering characteristics and construction needs, and also need to comprehensively consider the weather and time and other factors to scientifically and reasonably control the construction quality of concrete. In the process of determining the concrete mix proportion, the technical personnel need to combine the characteristics of high-rise buildings, select and configure the concrete grade, scientifically control the amount of water and sand, and at the same time, need to carry out repeated tests and adjustments

to ensure that its strength meets the engineering requirements. In the process of mixing admixtures, it is necessary to mix them in the laboratory. After many tests, they can be used in the actual construction. If the construction is carried out in winter, it is necessary to add a certain amount of silicate salt water and ordinary silicate into the concrete. After the concrete pouring is completed, the temperature of the finished product is measured. Combined with the temperature measurement record and construction scheme, reasonable insulation measures are selected. In addition, construction enterprises also need to choose the type of soil pump reasonably according to the engineering quantity in the actual construction operation, so as to ensure the stability and continuity of concrete construction. At the same time, before the construction, the relevant personnel need to carry out the technical disclosure, and strictly follow the established requirements in the construction operation.

4. FOUNDATION REINFORCEMENT TECHNOLOGY OF CIVIL ENGINEERING

The foundation reinforcement technology is more complex in the actual construction operation. Even though the opening of Qinghai Tibet Railway in railway technology effectively proves the development of this technology to a certain extent, there are still problems of foundation reinforcement in railway construction. At present, the foundation reinforcement technology used in China's civil engineering technology includes replacement filling method, dynamic compaction foundation method and soil replacement cushion method. In the actual construction, the selection of foundation reinforcement method needs to be determined according to the local construction environment and geological conditions. Among them, the soil replacement cushion foundation treatment technology has been widely used in the construction engineering construction, the main way is to remove the shallow soft soil of the foundation, and then replace it with materials with high load capacity and low compressibility. It should be noted that when replacing the shallow soft soil, relevant construction personnel need to remove the soil with strong expansion and high water permeability in the foundation, and also need to use the soil with poor water permeability and high stability for filling. The technology of dynamic compaction foundation treatment is to improve the foundation compaction force by throwing objects from high altitude. In practical application, the construction personnel use the weight between 8-10kg, and the heavy hammer falls freely in the height of 10-20m. The density of the shallow foundation soil can be significantly increased by the interaction between the tamping force produced by the falling of heavy hammer and the shallow layer of foundation soil, so as to improve the compression performance of foundation soil to a certain extent, and reduce the

compressibility. According to the overall planning of buildings and the conditions of self weight, the preloading foundation treatment technology applies pressure on the foundation in advance, mainly to further increase the compactness of soft soil foundation. Pile foundation foundation treatment technology is mainly concrete pile driving in soft soil foundation, so as to tamp the foundation. The vibroflotation foundation treatment technology uses the crane to lift the vibrator and start the water pump and submersible motor at the same time, so as to make the vibrator produce high frequency vibration. The main purpose is to increase the foundation density.

5. CONCLUSION

In conclusion, with the development of science and technology and economic progress, the application of new materials and new technologies in civil engineering structure provides the basis and guarantee for the development of civil engineering. In order to better improve the quality of construction engineering, it is also necessary to study and innovate the structural design and construction strategy of civil engineering, so as to promote the healthy and rapid development of the construction industry.

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On the Current Situation and Construction of Computer Professional Education in Secondary Vocational Schools

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Abstract: With the development of Internet information technology, people's production and life are more and more inseparable from computer technology, which also makes every school attach importance to the establishment of computer major, committed to the cultivation of students' computer ability. However, according to the observation of the education situation of computer major in secondary vocational colleges, the current situation of education is not optimistic, which not only fails to make students fully absorb the knowledge in the classroom, but also can not apply what they have learned, and can not meet the needs of computer technology in the society. This phenomenon should be worth the attention of grass-roots educators in secondary vocational colleges, and adopt effective means to change it. Therefore, starting from the current situation of computer professional education in secondary vocational schools, this paper tries to put forward the construction ideas to solve the current problems, hoping to bring some enlightenment to grass-roots teachers.

Keywords: Secondary Vocational School; Computer Major; Education Status; Construction Ideas

1. CURRENT SITUATION OF COMPUTER EDUCATION IN SECONDARY VOCATIONAL SCHOOLS

At present, in the social background of the development of information, all walks of life are affected and changed by computer technology, so the demand for computer talents in society is also increasing rapidly. Computer talents in Colleges and universities mainly focus on the development and research of programs. In addition to the Internet enterprises with professional counterparts, the demand for computer talents in the society is not strong. This is also the practical significance of training computer technology talents in secondary vocational colleges. With the continuous innovation of technology, the relevant requirements of social enterprises for talents have also changed greatly. Therefore, secondary vocational colleges should pay attention to this situation, strengthen the connection with the needs of social enterprises, solve the problems existing in the current stage of computer professional education in secondary vocational colleges, make teaching

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methods innovative, more grounded, and strengthen the cultivation of applied talents [1].

1.1 STUDENTS' LEARNING MOTIVATION IS NOT STRONG

Although the state attaches great importance to secondary vocational education and gives preferential policies to secondary vocational students to increase the number of students, it has not fundamentally solved the problem of the low level of secondary vocational students. Many students in secondary vocational colleges are not willing to learn, many of them are confused about the future, so they can not really mobilize their learning enthusiasm, the learning effect is not ideal, which is also easy to cause negative impact on the class style of study. Some students do not have a strong understanding of computer technology. They equate extensive and profound computer technology with online chatting and playing games. In addition, with the popularity of mobile intelligent terminals, it is easy for secondary vocational students with poor self-control to become addicted to the Internet and lose interest in computer knowledge. In addition, some students from rural areas in secondary vocational colleges have poor computer knowledge and poor foundation, which also leads to the difficulty of unified planning of class teaching progress, and then brings great difficulties to the follow-up teaching.

1.2 THE TEACHING CONTENT DOES NOT FIT THE MARKET WELL

Computer technology itself is booming with the changes of the times, but it takes a period of time for secondary vocational college textbooks to be reviewed, published and issued. When they are really learning, they may not be the most cutting-edge technology, or even some backward technologies. This is caused by the lag of teaching materials. In addition to the theoretical knowledge of computer technology, many computer technology can not do without the update of computer hardware. The computer technology learned may be incompatible with the computer system in the computer room, which makes students unable to really get exercise in the computer room practice class. There are also some teachers who fail to maintain the sensitivity of learning knowledge, fail to learn the latest computer knowledge all the time. At the same time, students' knowledge can not keep up with the development of the times. The expansion of the

scale of secondary vocational colleges will also make the construction of teaching staff not keep up with the requirements of teaching quality, resulting in the need for external teachers, which has a negative impact on the teaching quality. [2]

1.3 THE TEACHING MODE IS NOT NOVEL ENOUGH

In the current teaching mode, teachers' demonstration operation is generally adopted, while students follow the cat and draw tiger's advice. This leads to the fact that although students follow the teacher to complete the computer operation, they are actually passively receiving knowledge. They do not know why, and fail to establish their own independent thinking system, so the quality of teaching is greatly reduced.

1.4 THE TEACHING EVALUATION SYSTEM IS NOT PERFECT

Teaching evaluation system is also a key point affecting the quality of teaching. At present, many secondary vocational colleges in the evaluation system of computer major, and other disciplines, mainly using the form of computer and written examination. However, the examination questions still do not pay attention to the investigation of students' creativity, so the students just recite the questions and study the scope of the examination, which also leads to many students' weak practical ability and can't really apply the knowledge. [3]

1.5 SCHOOL ENTERPRISE COOPERATION IS NOT CLOSE

Secondary vocational colleges shoulder the important responsibility of exporting professional talents to the society, so they should pay more attention to the cooperation and communication with enterprises, and set up training classes for enterprises in computer specialty, so as to gradually develop the teaching mode towards the direction of strengthening school enterprise cooperation. But by observing the actual situation of many secondary vocational colleges, we can see that the basic is just a mere formality, and enterprises to set up professional training classes in schools are often in order to make their own reputation, play a propaganda role in disguise, and did not appoint professional engineers to complete the teaching task, and did not develop a targeted student training plan, so it did not really reach the school. The purpose and effect of enterprise cooperation. And the training and learning system is not strong, leading to many enterprise training class students, ultimately still unable to determine their own career planning.

2. THOUGHTS ON THE CONSTRUCTION OF COMPUTER EDUCATION IN SECONDARY VOCATIONAL SCHOOLS

2.1 IMPROVE THE PROFESSIONAL LEVEL OF TEACHERS

Therefore, teachers should pay more attention to the

development of computer science and technology, especially in the era of computer technology. In this way, when teaching students a drop of water, they can ensure that they have a pool of water. In view of the development of the Internet, teachers can collect information on the Internet, screen and integrate online resources after class, so as to improve their professional quality. After each class, we should adhere to the spirit of self-examination and Introspection on our teaching content, teaching methods and arousing students' enthusiasm. If we fail to achieve good results, we should find out the reasons and adjust them in time to improve the ability of classroom regulation. In addition, secondary vocational colleges should continue to create opportunities to provide targeted training for teachers, so that teachers can strengthen their own growth speed, which is conducive to teachers' career planning to the greatest extent.

2.2 PAY ATTENTION TO INNOVATION IN TEACHING METHODS

1. In computer teaching, we can focus on the syllabus, focus on students' task driving, and attach importance to the design of teaching topics on the basis of teaching materials learning tasks. Teaching topics need to ensure interest and practicality, so that students can operate by themselves and experience the practical significance of knowledge from the operation. Teachers can also divide students into groups, encourage students to strengthen cooperation and learning, and complete learning tasks through problem discussion. In this learning process, students can also strengthen the use of knowledge, for example, when students practice typing, let students practice five stroke input method, chat on QQ is the same. In this way, students can develop the habit of practice, create vivid teaching situation for students, so that teaching can be entertained and enthusiasm for learning can be maintained.

Improve the efficiency of classroom teaching. Computer teachers in secondary vocational colleges should attach importance to the development of teaching methods, such as dividing students into groups, or allowing students to try teaching in person, so as to make the originally boring classroom more interesting. In the teaching of document processing, the whole teaching content is divided into different tasks, and different tasks are completed in different class hours, or a class is directly divided into different groups to carry out cooperative learning between groups. The students' competitive psychology is used to emphasize the benign competition in the class, which greatly improves the efficiency of students' learning. Or in PPT teaching, students can give lectures in person, and let students collect materials before class, so that students are ready to show on stage. On the one hand, it can deepen students' understanding of knowledge, at the

same time, it can also make students clear about the process of teachers' preparation, correctly understand their own learning deficiencies, and exercise the ability of language expression, and comprehensively improve the quality of Teaching [5].

2.3 INNOVATIVE ASSESSMENT METHODS

Secondary vocational computer major should pay more attention to the investigation of practical operation class, not limited to rigid written examination. For example, after learning the rush software, students can make a courseware with PPT, or design business cards and posters, so that students can strengthen the use of knowledge. Therefore, it is necessary to innovate the assessment method, add the usual scores, and then make the students pay attention to the usual homework exercises [6].

3. CONCLUSION

To sum up, in order to improve the teaching quality of computer major in secondary vocational schools, we should attach importance to the position of students as the main body of teaching. Teachers should improve their own professional quality, adopt a variety of teaching methods, and fully mobilize the enthusiasm of students, so that students can apply what they have learned.

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Discussion on The Selection Method and Application of Mechanical Products in Modern Manufacturing Environment

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Abstract: In this paper, the selection methods of mechanical products in modern manufacturing environment are analyzed, and the application prospect of these matching methods is discussed.

Keyword: Modern Manufacturing; Mechanical Products; Matching Method

1. PROBLEMS OF TRADITIONAL ASSEMBLY METHODS

In the past, the assembly methods used in the process of mechanical product selection mainly include exchange assembly method, selective assembly method, adjustment assembly method and repair assembly method. The problems of these assembly methods mainly include the following aspects:

1.1 PROBLEMS EXISTING IN INTERCHANGEABILITY ASSEMBLY METHOD

The interchangeability assembly method includes complete exchange method and large number exchange method. The application of exchange assembly method in the selection and matching of mechanical products does not need to select, adjust and repair parts, and the machining accuracy of parts directly determines the assembly accuracy. In general, in the case of high-precision small ring size chain or low-precision dimension chain, it is suitable to apply the complete exchange method, but this will increase the difficulty of parts processing. By improving the machining accuracy of parts to avoid the extreme situation of assembly, it can not reflect the actual situation, and the economy is poor [1-8]. In the application of large number exchange method, the tolerance requirements of parts are relatively low, which is conducive to improving the economy of parts processing. It is suitable for application in the case of mass production, more components and high assembly accuracy requirements, which can effectively reduce the number of waste products.

1.2 PROBLEMS IN SELECTING ASSEMBLY METHOD

The selective assembly method includes direct matching method, grouping selection method and composite matching method. This kind of assembly method can enlarge the tolerance of the component ring in the dimension chain, obtain better economy, select the appropriate parts during assembly, meet the requirements of assembly accuracy, and is suitable for

mass production with high assembly accuracy and less component rings. In order to meet the requirements of assembly precision, it is necessary to select the right parts by manual selection. The application of grouping selection method needs to determine the tolerance of the component ring through complete exchange method, enlarge several times, complete the processing according to the economic accuracy, group the parts according to the actual size during assembly, and complete the assembly according to the grouping situation, which meets the requirements of assembly accuracy, and is suitable for the mass production of small ring size chain with high assembly accuracy. The composite matching method combines the sub assembly method and the direct selection method. By using the direct matching method and the composite matching method, the worker's technology is the main factor affecting the assembly accuracy, and the assembly time can not be accurately controlled.

1.3 PROBLEMS EXISTING IN ADJUSTMENT AND MATCHING METHOD

The adjustment and selection method includes fixed adjustment method and movable adjustment method. The size of the composition ring needs to be adjusted to meet the requirements of assembly accuracy. In the fixed adjustment method, parts with appropriate size should be added into the dimension chain as adjusting parts. According to the accumulated error formed by the composition ring, the adjusting parts of different sizes can be replaced to meet the requirements of assembly accuracy. Generally, the adjustment parts used include shaft sleeve, gasket and gasket ring, which are suitable for mass production, but the adjustment parts need to be manufactured according to the assembly accuracy. This will increase the workload of machining. The movable adjustment rule needs to select a part in the dimension chain as an adjusting part. By changing the position of the adjusting part, the accumulated closed ring error can be adjusted to meet the requirements of assembly accuracy. The application of movable adjustment method requires parts as adjusting parts, which makes the structure complex and difficult to realize, which will be limited in application. In addition, even if there are conditions, it will increase the workload of adjustment, which is not suitable for application in agile manufacturing environment.

1.4 PROBLEMS EXISTING IN REPAIR ASSEMBLY METHOD

Repair and assembly method needs to repair a component ring in the dimension chain or prepare on site to ensure that the closed ring meets the requirements of assembly accuracy. In the assembly process, the error in the closed ring can be compensated by using the size of a component in the repair dimension chain, so as to achieve the specified accuracy. The repair and assembly method is suitable for the multi ring dimension chain with high closed ring precision in single piece and batch production, and it can also be used in the small ring dimension chain with high closed ring precision requirements without interchangeability of matching parts. This assembly method can not realize the exchange of parts, which will increase the workload, and the assembly stability is poor, requiring workers to have higher technical ability.

2. DYNAMIC SELECTION METHOD OF PARTS SUPPLIERS

In order to obtain good development opportunities, manufacturing enterprises need to actively develop their core competitiveness, make rational use of information technology, and form dynamic production alliance with other enterprises, which can better adapt to the dynamic change of market demand. In this way, we can make full use of all kinds of resources and realize the dynamic integration of enterprises. According to the distribution of suppliers and the changeable customer demand, the cooperation of supply chain is more complex, and the alliance between enterprises and suppliers will be split and rebuilt at any time. The selection of dynamic alliance members needs to select the appropriate parts according to the cost factors to improve the performance of products and meet the needs of customers. Therefore, the selection of satisfactory parts suppliers will directly affect the customer satisfaction of products. In order to solve this problem, we need to apply the method of dynamic supplier selection and convenient information exchange, so that enterprises can flexibly select parts suppliers according to market factors and customer requirements. Most of them focus on the establishment of index system and the optimal selection of partners. In the modern manufacturing environment, the new selection in product design can meet the personalized requirements of different customers, and there is no dynamic selection method for parts suppliers. According to the characteristics of association graph model and product level assembly model, a kind of product can be represented by a general product model, and the data such as ports, rules and constraints can be introduced to better display the knowledge, experience and relationship related to the product. Using this model, we can select the right parts supplier according to the

customer's demand and product design, and optimize the supplier portfolio. Through this method, we can dynamically select a satisfactory supplier portfolio, and effectively improve product quality and customer satisfaction.

3. SELECTION AND MATCHING METHOD OF MULTIVARIATE HETEROGENEOUS ASSEMBLY

In the production process of mechanical products, assembly is one of the most important processes, and it is also the final link in mechanical manufacturing. It is a key factor affecting product quality, and also has a direct impact on the production efficiency and cost of products. In this final production stage, it is necessary to adapt to market changes in quality control, production batch, delivery time and product update. In order to effectively improve the assembly efficiency and product quality, we need to actively develop advanced assembly technology. In order to optimize the product manufacturing system, it is necessary to realize automatic assembly, which is conducive to improving the product production efficiency and controlling the product cost. At the same time, it can improve the product quality, reduce the work intensity, better replace the manual assembly labor, and ensure the balance of the production system. At present, the research on automatic assembly is focused on assembly machinery, assembly equipment, assembly robot and flexible assembly line, and there is little research on assembly methods. Because the traditional assembly methods are suitable for different occasions, and there are some shortcomings, it is difficult to achieve automatic assembly. Therefore, it is necessary to apply assembly layer selection method, which can be applied in various manufacturing automation flexible assembly systems to meet the requirements of automatic matching, which is conducive to reducing the complexity of assembly work, effectively controlling product quality, effectively improving assembly efficiency and ensuring assembly quality. Therefore, we need to analyze the matching characteristics of the basic structure, series structure, parallel structure and hybrid structure, and take them as the research object. At the same time, the shortcomings of traditional assembly methods should be analyzed. In the case of multiple assembly accuracy requirements, a variety of parts should be selected at the same time, so as to reduce the number of remaining parts and the fluctuation of assembly quality.

4. MATCHING METHOD BASED ON HYBRID GENETIC ALGORITHM

In the selection of mechanical products with hybrid structure, it is necessary to optimize the arrangement and combination of some items. In order to meet the requirements of product tolerance fit, it is necessary to make overall planning of parts and components, and ensure the assembly quality on the premise of minimizing the remaining parts. In the process of parts selection, the search space is large, which belongs to

the problem of sub assembly optimization. It is difficult to find the best solution by using conventional methods and calculation tools. Because genetic algorithm is a global optimization algorithm, it can obtain good application effect. Therefore, we need to optimize the selection through genetic algorithm according to the characteristics of product selection. If the selection ligand can be used to form the component combination sequence, it can not be applied to the crossover and mutation of binary code, so we need to design new genetic operation to adapt to the genetic gene selection problem. At the same time, the premature phenomenon and local optimization ability should be considered when applying genetic algorithm. Simulated annealing algorithm is introduced to optimize the algorithm, and a matching method based on hybrid genetic algorithm is proposed.

5. APPLICATION PROSPECT OF MECHANICAL PRODUCT SELECTION METHOD IN MODERN MANUFACTURING ENVIRONMENT

First of all, the selection of design layer and assembly layer can select the appropriate parts in the assembly, ensure the product quality to meet the requirements of customers, and reduce the production cost of products. In the discrete event dynamic system such as assembly system, the selection process is also changing at any time. The discrete characteristics of key constraints should be considered in solving the problem. In the selection of multiple parts, due to the difference of production process, material cost and maintenance cost, it is impossible to control the production cost to the minimum with the minimum spare parts as the goal. Therefore, it is necessary to establish the priority of parts selection to maximize the use of parts with higher priority. In addition, it is necessary to select typical products with different structures to verify the matching method, verify the accuracy, integrity and adaptability of the matching theory, analyze the possible problems, form a scientific feedback mechanism, and constantly revise the matching method.

6. CONCLUDING

In a word, in the modern manufacturing environment, the traditional mechanical product selection method has been unable to meet the needs of market development. In order to properly solve these problems, we need to actively develop new matching methods, widely used in mechanical products matching work.

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Application Analysis of Computer Image Processing and Recognition Technology

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Abstract: Under the support of information technology, image recognition and processing technology has been applied in many fields. Compared with the previous manual recognition processing methods, it has obvious advantages and can quickly improve the processing efficiency. Therefore, it is of practical significance to analyze and explore the application of computer image processing and recognition technology to promote social development.

Keyword: Computer; Image Processing; Recognition Technology; Application; Research

1. OVERVIEW OF COMPUTER IMAGE PROCESSING AND RECOGNITION TECHNOLOGY

In the process of information development, computers have become an important technical support for promoting social development. Especially after the government put forward the strategy of "Internet plus", Internet technology and computer technology have been widely applied in many fields. Computer image recognition and location technology have broad application and development prospects. It is in line with the characteristics of the times and development trend.

Words and images belong to a kind of valuable resources. Compared with words, images are more vivid and intuitive. They are the real and vivid descriptions of objective things. They are important carriers for information transmission in the network age. The definition of images is: generated by computers, light-emitting diodes, projectors, television, photos and paper documents. Visual information can be called image. According to the differences of recording methods, images are mainly divided into digital images and analog images. Digital images are the most widely received images by contemporary audiences. For example, browsing the Internet and watching videos can receive digital images. With the increase of the number of digital images, the processing capacity is also greater. The manual processing method has been gradually eliminated by the times in the past, and its processing efficiency and processing are also improved. The effect and other aspects are difficult to meet the needs of use. Computer image processing and recognition technology takes computer technology as the future, and there is a certain similarity between its processing and manual processing. By replacing human brain

with intelligent system to complete relevant work, the subjective color produced by manual processing can be avoided, and the objectivity and rigor of image processing can be ensured.

2. PRINCIPLE AND PROCESS OF COMPUTER IMAGE PROCESSING AND RECOGNITION TECHNOLOGY

In the specific application, the principle of this technology is similar to the manual processing method. Through the computer system, the objective things are directly recognized, including the size, color, shape and characteristics of things. The information identified by the system is fed back and saved, and the relevant information in the database is extracted for image recognition and processing. Although this technology is similar to the principle of manual processing, because the computer system is more objective, it can ensure the objectivity and reliability of data acquisition, and exclude the influence of human subjective factors.

The application process of the technology is as follows: first, obtain the basic information of the image and present the information by means of electrical signal; second, according to the obtained information, image preprocessing is carried out to extract valuable information for analysis, so as to realize the value and refinement of image information processing; third, identify image features according to the use requirements, and obtain the recognition results through feature analysis to ensure the accuracy of the results; fourth, according to the obtained information to make decisions to meet the actual needs of users.

3. MAIN CHARACTERISTICS OF COMPUTER IMAGE PROCESSING AND RECOGNITION TECHNOLOGY

3.1 FLEXIBILITY

In the application of this technology in image processing, the database and system can give full play to their own intelligent characteristics, carry out scientific image processing, users can automatically judge the image by using relevant software or technology, and flexibly adjust according to the use demand, so as to make the image meet the use demand. Flexibility is the most significant feature of this technology.

3.2 ACCURACY

Before the technology has been widely used, the image processing mainly adopts manual method, and the operator carries out image processing according to the

use needs. However, due to the error of manual operation, the image processing effect is difficult to meet the needs of use. With the development of computer image recognition technology, it has been applied more mature, can effectively complete the relevant work, ensure the integrity and accuracy of image value.

3.3 EFFICIENCY

In the previous manual processing mode, staff need to process massive images, which has the characteristics of heavy workload, heavy task and high error rate. Through the application of computer image recognition technology, we can quickly complete the image accurate recognition and efficient processing, improve the work efficiency and quality, and in cloud computing technology, we can quickly complete data analysis and processing, ensure the accuracy and reliability of data, and have reference value.

4. APPLICATION OF COMPUTER IMAGE PROCESSING AND RECOGNITION TECHNOLOGY

4.1 CRIMINAL INVESTIGATION FIELD

In the field of criminal investigation, the application of computer image recognition technology can provide convenience for public security personnel to deal with criminal cases or carry out case investigation. For example, in the case of tracking suspects, public security officers and police can use the technology to access the database, through image and video recognition, to master the suspect's face and track, and then quickly lock the suspect, improve the efficiency of solving cases; for example, in handling cases, often encounter some distortion and complex images, the use of this technology can accurately carry out image segmentation analysis, through scientific processing to improve the clarity of the image, and then provide clues for the handling of cases.

4.2 MEDICAL FIELD

In the new situation of China's economic development, the demand for medical resources of residents' life continues to increase, which drives the rapid development of the medical industry. In the diagnosis and treatment of patients, a large number of image resources will be generated. Due to the large amount of processing types and processing capacity, higher requirements are put forward for image processing. The application of computer image recognition technology can complete image processing quickly, efficiently and accurately. For example, in the processing of cell chromosome image, data comparison can be completed through image recognition, and then chromosome can be accurately identified, providing reliable data for medical personnel; for example, in digital imaging technology, nuclear magnetic resonance imaging, ultrasound imaging and endoscopy and other aspects, the application of this technology can quickly complete image recognition and processing, and has significant

application effect; for example, in 2D image processing, through image modeling and analysis, medical personnel can comprehensively and accurately grasp the patient's physical condition, and then ensure the pertinence and comprehensiveness of treatment.

4.3 MINERAL FIELD

With the vigorous development of China's society and economy, social production and residents' life need a lot of mineral resources, which drives the rapid update and development of mineral development industry, and the continuous innovation of exploration equipment and technology. Science and technology has become the core power to promote the transformation of the industry. The application of computer image recognition technology can provide convenience for the development of mineral resources. For example, in the copper mining, its detection is difficult. The application of this technology can quickly complete the copper mine search through the detection and identification method, input the spectral information of copper ore into the database, and extract the soil of copper ore, which can quickly complete the prospecting work and save the production cost of enterprises. To improve the efficiency of mineral exploration.

4.4 TRANSPORTATION

With the rapid development of transportation, urban traffic is more tense. The application of computer image recognition technology can provide convenience for traffic law enforcement and command. At present, it has been widely used in vehicle positioning, intelligent adhesive tape and driving assistance. For example, in the application of driving assistance, the technology can timely remind the driver that the vehicle is about to deviate from the lane, and the driver corrects the steering wheel according to the intelligent reminder. In the long-term driving, the driver is prone to problems such as inattention and excessive fatigue. If the state is not adjusted in time, there will be driving danger. Through the lane departure warning technology, the vehicle driving can be dynamically monitored. According to the data of image recognition, the driver adjusts the steering wheel to effectively avoid the occurrence of traffic accidents; for example, with the continuous increase of the number of motor vehicles, the number of traffic accidents is also increasing every year. The application of computer image recognition technology can quickly complete the division of responsibility and identify the license plate number of illegal vehicles. With clear requirements, the application of this technology can quickly complete image recognition.

4.5 ARCHIVAL FIELD

Archives are important resources accumulated in social development, which play a role in promoting social development, such as medical records, personnel files, production files and management files.

However, due to the fact that the former file management was mainly based on paper documents, it did not meet the characteristics of the times and the needs of use. In the transformation of paper files into digital archives, the application of computer image recognition technology can quickly extract the resources in paper archives and transform them into digital archives, which provides convenience for file management.

5. CONCLUSION

In a word, under the new situation of social development in China, computer technology has been widely used. Image recognition and processing technology is supported by computer technology, which has been widely used in different fields, and provides great convenience for residents' life and social production. It is believed that with the development of science and technology, the application efficiency and effect of this technology will be improved.

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Construction Technology Research Core Ideas of Building Electrical Installation

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Abstract: In modern building construction, electrical installation is the core part, which is the basic guarantee of building function and fully meets the needs of contemporary residents. Therefore, in the installation construction, the construction unit should reasonably apply relevant technology to ensure the safety, reliability, and stability of electrical operation, and provide better construction products for residents.
keyword: Construction Engineering; Electrical Installation; Construction Technology; Research and Analysis

1. INTRODUCTION

With the continuous acceleration of urbanization, the demand of residents' life and production for construction projects continues to increase. As the basic process of engineering construction, electrical installation can meet the needs of contemporary residents. With the development of informatization, intelligence and networking, more stringent requirements are put forward for the installation quality. Therefore, construction enterprises should attach great importance to it, Reasonable application of construction technology to ensure electrical safety. With the continuous improvement of the living quality of modern residents, more requirements are put forward for the comfort and functionality of the living environment. The electrical installation has also changed a lot. It is no longer a simple way to turn on the lights, bury pipes and thread wires [1-4]. The use of a large number of advanced devices and equipment has also brought some difficulties to the installation work. Unreasonable application of construction technology will not only affect the normal use of equipment, but also bury some potential safety hazards. Especially for high-rise buildings, if the electrical installation is not correct and unreasonable, such as three-phase imbalance and neutral line disconnection, electrical appliances will be burned, and then fire accidents will be induced, resulting in loss of property and life of residents. Therefore, enterprises should attach importance to electrical installation from the ideological level, reasonably apply various construction technologies, and give full play to the practical functions of buildings.[1]

2. CONSTRUCTION TECHNOLOGY OF ELECTRICAL INSTALLATION

2.1 PRELIMINARY PREPARATION

Before the organization of electrical installation, it is

necessary to implement various preparatory work to avoid sudden situation in the installation, which may lead to installation failure or safety accident. First of all, the installation personnel, technical personnel and designers should make technical disclosure, analyze the construction drawings, and find the inconsistency with the site situation; secondly, formulate the construction method and schedule, and analyze the connection methods of roof, floor, column, beam and other departments; finally, check the quality of various installation equipment and materials entering the site, including quantity, quality and model.[2]

2.2 PIPELINE EMBEDDING

Pipeline embedding is the basic content of electrical installation. Firstly, before embedding, the line should be scientifically designed in combination with the specific situation of the site, and the straight line should be erected according to the requirements. The distance of the embedded pipeline on the building surface is 15mm. If the construction environment is relatively humid, moisture-proof treatment should be carried out at the connection part. Secondly, the underground crossing pipeline should be well protected, which is usually convenient finally, in order to prevent the high pressure and high temperature from affecting the pipeline strength, it is necessary to do a good job of protection to ensure that the pipeline strength meets the construction requirements.

2.3 CLEANING AND THREADING

Cleaning and threading has a direct impact on the subsequent installation. The installation personnel should not ignore this part of the content and implement the relevant work according to the established requirements. Firstly, check the inside of the pipeline. If there is moisture or debris in the pipeline, it is necessary to clean it in time. Auxiliary work can be used to complete the deep cleaning work to provide convenience for wire penetration. Secondly, talcum powder can be applied in the pipeline before threading to reduce the friction between the line and the pipe wall, so as to facilitate the smooth penetration of the pipeline. Finally, knotting or bending of the line is strictly prohibited for example, the length of outgoing wire is about 1.5-2m, and the length of switch guide is about 15-20cm.[3]

2.4 INSTALLATION OF DISTRIBUTION BOX

Distribution box is the main content of electrical installation, which has the function of distributing and receiving electric energy, and is the controller of on-site

power load. In the installation of distribution box, the installation personnel need to operate in strict accordance with the established requirements, and illegal operation is strictly prohibited. First, in the electrical installation, there are many distribution boxes with complex models. The installation personnel need to strictly check the model of the distribution box. The connection between civil construction and electrical installation should be done well. For example, the junction box and distribution box should be installed according to the thickness of plastering construction. Second, the inlet and outlet parts should be accurate to provide convenience for the subsequent operation. After the location of the distribution box is clear, it is necessary to adjust the vertical deviation of the distribution box, and the deviation degree should be controlled according to the height of the box. Third, the internal power lines of the distribution box should be distinguished by different colors according to the established standards of the industry, so as to avoid confusion of the power lines. Fourth, the wire connection should be tight and stable, and the electronic components and wire connection parts should use spring pads to ensure the connection is tight and firm; fifth, the power supply lines inside the distribution box should be distinguished by different colors according to the established industry standards. The appearance of the electric box shall be kept clean and tidy, and the site environment shall be cleaned to avoid dust entering the distribution box.[4]

2.5 SWITCH INSTALLATION

First of all, in the installation of light switch and socket, the installation personnel should first check the construction drawings, make clear the specific installation position according to the requirements of the drawings, and then adjust the box position according to the requirements, and the deviation should not exceed 40mm; secondly, in the embedded installation, the reinforcement should be bent into a right angle according to the thickness of the pouring plate, and it should be slowly inserted into the junction box, and welded firmly by welding technology finally, after the installation of the switch socket, the quality inspection should be carried out. If there are problems, timely adjustment should be made to avoid safety failure in use.

2.6 LIGHTNING PROTECTION INSTALLATION

Lightning protection installation can avoid installation accidents in use. Construction enterprises should do a good job in lightning protection installation. First of all, the metal shell of the equipment should be grounded or grounded. The switch, shell and neutral point in the transformer, the cable head, the metal sheath of the cable and the metal bracket should be reliably grounded to avoid electric shock. Secondly, if the

indoor doors and windows need to be grounded, professional copper wire should be used to weld the grounding wire. Finally, in the construction of lightning protection system, metal should be ensured. The components are closely connected with the grid to avoid electromagnetic interference.

2.7 EQUIPMENT COMMISSIONING

After the completion of the installation of the equipment, it will enter into the debugging link. Through the equipment debugging, we can find the quality problems in the installation. First of all, check the performance and electrical circuit of the equipment, and then carry out the trial operation after confirming that it meets the requirements, and check its safety and reliability during the operation; secondly, during the commissioning of various equipment, it is necessary to carry out item by item commissioning according to the design drawings and instructions, such as the air conditioning equipment, to debug its safety protection, temperature control range and refrigeration effect, so as to ensure that its various performances meet the requirements finally, the technical personnel of the manufacturer should participate in the commissioning of the electrical equipment with strong professional,

3. CONCLUSION

In a word, with the vigorous development of China's society and economy, the quality of life of residents has been significantly improved, and the practicability and functionality of construction projects are required to be higher. Electrical equipment is the hardware basis for building functions. Through reasonable installation technology, it can ensure the stable operation of electrical equipment, meet the growing demand of residents, and promote the sustainable development of the construction industry.

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Key Research on Landscape Construction Management and Greening Maintenance Management

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Abstract: As a key part of modern urban greening, with the continuous improvement of people's ecological awareness and environmental protection awareness, landscape construction is also more concerned and valued. The construction unit should realize the social benefits and ecological awareness of landscape engineering, implement maintenance management and construction management, grasp its key points, and realize the sustainable development of garden construction.

Keyword: Landscape Engineering; Construction Management; Greening Maintenance Management; Analysis

1. KEY POINTS OF GARDEN CONSTRUCTION MANAGEMENT

Under the background of continuous development of urbanization, residents pay more attention to living space and urban environment. As a key part of modern city, landscape architecture plays an important role in regulating urban microclimate, greening environment and purifying air. Landscape engineering is different from other projects, in the construction of green plants, in the implementation of construction management, but also pay attention to strengthen the late maintenance, to ensure the healthy growth of plants, therefore, the construction unit should give maintenance management and construction management to attach great importance to, give play to the ecological value of the garden.

1.1 QUALITY MANAGEMENT

Quality is the key measure to play the ecological benefits of gardens. In the implementation of quality management, the construction unit should grasp the following key points: first, according to the local ecological environment, climate characteristics and soil properties, scientific selection of green plants, as far as possible to choose local species, not only can reduce the probability of occurrence of diseases and insect pests, but also can ensure that plants have strong environmental adaptability. Secondly, after the introduction of species, the number and species of plants should be controlled scientifically, and the construction personnel should be required to plant according to the established operation process, and illegal operation is strictly prohibited. Finally, the optimal allocation of various plants, the overall

planning of garden plants, and the creation of a combination of aesthetics and ecology should be taken into account. The beautiful garden landscape forms a scientific and reasonable landscape layout and provides a suitable place for residents' leisure and entertainment.

1.2 COST CONTROL

Landscape engineering belongs to a livelihood project. In consideration of ecological and social benefits, it is also necessary to fully consider economic benefits. The construction unit should pay attention to strengthening cost control, reasonably optimize human and material resources, avoid resource waste, and reasonably control costs according to budget quota. Firstly, in the stage of landscape design and planning, the procurement scheme should be prepared according to the specific situation of the construction site, and the cost should be considered comprehensively from the aspects of species price, seedling size, seedling type and transportation distance, so as to reduce the plant procurement cost as much as possible; secondly, in the process of transportation and planting, reasonable measures should be taken to protect the seedlings and avoid root damage during transportation, so as to prevent the root damage during transportation. Finally, optimize the allocation of mechanical equipment and human resources on site, especially in the selection of machinery, determine the types and equipment of machinery according to the construction quantity, avoid large amount of earthwork excavation, and reduce the construction amount according to the terrain and landform of the site.[1]

1.3 SCHEDULE MANAGEMENT

Garden construction is a complex system engineering, involving civil construction, plant planting and later maintenance, which requires high construction progress. If you want to complete the garden construction within the established construction period, the construction unit should pay attention to strengthening the progress management. First of all, before the construction of the project, organize personnel to carry out on-site investigation, master the soil properties, topography, climate characteristics and ecological system of the site, and formulate the construction schedule according to the obtained data; secondly, predict the external factors affecting the

construction progress in advance, such as heavy rainfall, gale weather, etc., and temporarily adjust the progress plan according to the sudden situation; finally, the construction list is adopted. We should not blindly construct in order to catch up with the progress, especially in the seedling planting. If the construction is delayed due to unexpected factors, we should formulate a compensation scheme to ensure that the construction task is completed on time.

1.4 PROCESS MANAGEMENT

Landscape construction design to a large number of technology, the rationality of the use of technology is related to the construction quality and plant survival rate, the construction unit should put the management focus on the process management. Firstly, in the preparation of the construction scheme, the construction technology shall be determined according to the construction requirements, and the technical personnel shall be organized to demonstrate and analyze the process to ensure the rationality and correctness of the process; secondly, in the field construction, professional technical personnel shall be arranged to carry out on-site management and control, and if any improper use of process or misoperation of personnel is found on the site, timely correction and treatment shall be carried out. Finally, after the completion of the construction work, it is necessary to summarize and analyze the effect of the process, so as to accumulate experience for the future garden construction.[2]

2. KEY POINTS OF LANDSCAPING MAINTENANCE AND MANAGEMENT

2.1 IMPLEMENT FERTILIZER AND WATER MANAGEMENT

The normal growth of plants requires a certain amount of water and fertilizer. In the implementation of maintenance management, the construction unit should strengthen the management of fertilizer and water to meet the nutritional needs of plant growth. First of all, due to the diversity of plant species in the garden, different plants have different demands for water and fertilizer. In fertilizer and water management, maintenance personnel should determine the fertilizer and water amount according to the characteristics of plants to ensure reasonable nutrient supply; secondly, there are differences in fertilizer and water demand of plants at different growth stages, and maintenance personnel should determine the application of fertilizer and fertilizer according to the growth of plants. Finally, green and pollution-free products should be used as far as possible in fertilizer selection. It is strictly forbidden to affect the garden ecological environment due to the use of fertilizer, and the water source should be clean and clean.[3]

2.2 PEST CONTROL

Plants are easy to be attacked by diseases and insect pests in the process of growth. If the diseases and

insect pests are not strictly controlled, they will affect the healthy growth of plants and even harm the ecological benefits of gardens. The construction unit should take the prevention and control of diseases and insect pests as the focus and core of maintenance work. First of all, in view of the current more common diseases and insect pests, such as rust, rot, black spot, damping off, etc., when the plant is found to have the above diseases, the established countermeasures and targeted treatment should be taken immediately; secondly, in the aspect of plant species collocation, the disease resistance ability of plants should be comprehensively considered, and regular inspection of plants should be organized. Finally, chemical agents should be avoided in the prevention and control, and green means such as physical control and biological control can be used to play a role in scientific prevention and control.

2.3 IMPROVE THE QUALITY OF PERSONNEL

The maintenance work is the basic content of landscape construction. The professional ability and comprehensive quality of maintenance personnel are closely related to the maintenance quality. The construction unit should improve the quality and ability of the maintenance team from multiple ways to better meet the post requirements. First of all, we should absorb talents with professional background from universities and society, enrich and improve the maintenance team, and optimize the educational structure and knowledge structure of the team; secondly, we should focus on the maintenance personnel to carry out regular professional post training, the training content should involve all aspects of plant maintenance, and the professional ability should be improved through systematic education and training; finally, the post responsibility and division should be clarified. Physical work, mobilize the sense of responsibility and work of all maintenance personnel.[4]

3. CONCLUSION

In a word, under the guidance of the concept of building an ecological society, the role of landscape engineering for modern cities is more prominent. The construction unit should grasp the key points of maintenance management and construction management, create a high-quality environment for plant growth, and play the ecological and social value of the project.

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Analysis of The Application of Structure and Foundation Reinforcement Technology in Civil Engineering Construction

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Abstract: With the rapid development of economy and society in China, the urbanization process is accelerating gradually, and the quantity and scale of civil engineering are also increasing and expanding. In civil engineering construction, the stability of foundation and structure is closely related to the overall quality of the project. Therefore, the construction enterprises and relevant personnel should use the reinforcement technology reasonably in practice, and then realize the social benefits and economic benefits of the project. This paper mainly analyzes and expounds the application of structure and foundation reinforcement technology in civil engineering construction, hoping to give reference and reference to the construction field of our country.

Keyword: Civil Engineering Construction; Structure and Foundation; Reinforcement Technology; Application

1. THE CONCRETE APPLICATION OF FOUNDATION REINFORCEMENT TECHNOLOGY IN CIVIL ENGINEERING CONSTRUCTION

Civil engineering is the key component of the construction industry. With the vigorous development of science and technology in China, construction technology and construction technology are also continuously optimizing and improving, especially foundation and structure construction technology, and also in continuous innovation and development. Civil engineering is closely related to the living work of residents, and it is not only related to the use experience of residents, but also has a direct impact on the property and life safety of residents. The foundation and structure reinforcement technology is an important technology of civil engineering construction. Through the reasonable application, it can improve the service life and construction quality of the project, and then create safe and comfortable living conditions for the residents, which is of positive significance to the construction of a harmonious society [1-4].

In the construction of civil engineering, foundation is an important construction link, which needs to have strong bearing strength. If it is simply dependent on the foundation strength, it is difficult to meet the safety

needs of the building, so it is necessary to introduce the foundation reinforcement technology to scientifically treat the foundation to improve its strength and stability. At the same time, the environment and geological conditions of many civil engineering projects are complex, and the foundation reinforcement technology has the characteristics of wide range and complex technology. In different geographical and geological environment, there are some differences in the technical application. For example, the soil conditions of loess in North China and black soil in Northeast China are more complex. If the foundation is not properly treated, the building will easily settle or sink. Only reasonable foundation reinforcement technology can guarantee the construction quality and construction safety.

1.1 REPLACEMENT METHOD

Replacement method is the most commonly used foundation reinforcement technology in civil engineering construction in China, which includes dynamic compaction replacement method, lime pile method, gravel method, vibro impact replacement method and cushion method. For example, in the civil engineering, the replacement method is used. The construction personnel need to dig out the soil to be replaced in advance, fill the hard earth and stone into the pit, and then lay the foundation for the smooth and safe construction of civil engineering.

1.2 DRAINAGE METHOD

Drainage method is a high efficiency, low cost and simple operation of foundation reinforcement technology, which is mainly suitable for soft soil. In the concrete application of drainage method, the method of preloading is used to extract the water rich in the soil and enhance the density of soil. The principle of the method is to improve the soil density and strengthen the foundation.

1.3 EXTRUSION

The extrusion method is also called the vibration compaction method, and the dynamic compaction method and the vibro compaction method are all one of the extrusion methods. The method of vibration dense extrusion is to reinforce the foundation by plain and miscellaneous fill. The dynamic compaction method mainly applies impact force and extrusion pressure to the foundation through the double pressure of external and pressure, and optimizes its stability

while improving the reliability and compactness of the foundation. In the application of extrusion method, relevant equipment and machinery need to be prepared. After vibration impact is completed, the materials shall be filled into the foundation, and the foundation density shall be improved.

1.4 CHEMICAL METHOD

Chemical method is an important technique of foundation reinforcement in civil engineering construction, which includes grouting method and deep mixing method. For chemical technology, deep mixing is more suitable for silt and peat soil, and grouting method is more suitable for rock mass soil or weak soil. Chemical method is mainly used to strengthen the foundation, avoid the problems of wall breaking, wall inclination and wall crack, and shorten the service life of the building.

2. THE CONCRETE APPLICATION OF STRUCTURAL REINFORCEMENT TECHNOLOGY IN CIVIL ENGINEERING CONSTRUCTION

The stability of civil engineering structure has direct influence on the performance and safety of the building. If the strength of construction concrete is insufficient, it will have a negative impact on the service life of the bearing strength of the project. Generally, the structural reinforcement technology is mainly used in the old urban reconstruction and the aging of the engineering structure. Under the background of the continuous progress of urbanization in China, many buildings in the old city have a long service life. Under the condition of demolition and reconstruction, there are some hidden dangers in use. The use of scientific structural reinforcement technology can improve the overall reliability of the building.

2.1 SECTION REINFORCEMENT TECHNOLOGY

Cross section reinforcement technology is the most commonly used reinforcement technology in the construction of civil engineering structure. It has the advantages of low cost, high bearing strength and convenient construction, and has been widely used in structural reinforcement. The reinforcement technology of section mainly uses the way of enlarging the area of the project section and the concrete structure, optimizing the bearing strength of the project and playing the role of strengthening. For example, the strength of columns and beams is low, so the shear resistance and bearing capacity of the section can be enhanced by cross-section reinforcement, and the bending problems of internal columns and internal beams can be avoided in the construction of the project, and the reliability and safety of the building can be improved.

2.2 CARBON FIBER REINFORCEMENT TECHNOLOGY

Carbon fiber, as a new type of building material, has been widely used in civil engineering construction. It

is also a common reinforcement technology in the field of construction, which has the advantages of beautiful appearance, long service life and simple construction sheet. In the concrete use of carbon fiber reinforcement technology, the use of carbon fiber material to strengthen the engineering structure, which is mainly used in bending reinforcement, shear resistance and seismic performance reinforcement, has a good application effect.

2.3 REINFORCEMENT TECHNOLOGY OF PLANTING REINFORCEMENT

The reinforcement technology of planting reinforcement mainly uses reinforcement to reinforce civil engineering structure. In practice, technicians should combine the reinforcement requirements, and ensure the quality and efficiency of reinforcement by defining the fixed potential, welding the reinforcement, cleaning the reinforcement hole, pretreatment and reinforcement. The reliability, stability and safety of the engineering structure can be improved by planting reinforcement, and it has remarkable application effect.

2.4 CRACK REPAIR TECHNOLOGY

Crack repair technology is a common technology for engineering cracks, which has the characteristics of simple and practical, economical and convenient, but its application scope is narrow, mainly used in engineering structure or wall cracks. Before the concrete application, the width and length of structural cracks need to be tested, and then the suitable remedy method should be selected. At the same time, the quality and stability of the project can be improved, and the service life can be prolonged, and the financial, material and human costs can be saved.

3. CONCLUSION

In a word, with the gradual acceleration of urbanization in China, the scale and quantity of civil engineering projects are increasing. In order to ensure the construction quality, we need to adopt reasonable reinforcement technology to strengthen the foundation and structure, and then improve the stability and scientificity of the structure. At the same time, with the continuous development of science and technology and construction technology in China, the foundation and structure reinforcement technology will be better developed. The emergence of various green new materials and technologies will also promote the sustainable development of civil engineering construction industry in China.

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Effects of Extracurricular Training on Bone Mineral Density and Bone Metabolism of Middle School Girls

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Abstract: To investigate the effect of after-school training on bone mineral density and bone metabolism of middle school girls. Methods 60 healthy senior high school girls were selected and divided into exercise group and control group. Bone metabolism indexes were measured by modular automatic biochemical analyzer made in Japan and S200 enzyme labeled instrument produced by thermo company in the United States, and lunar prodigy dual energy X-ray bone densitometer produced by GE company in the United States was used to measure bone mineral density. Result The BMD of ward's triangle, trochanter and lumbar L2 in the exercise group were higher than those in the control group ($P < 0.01$), but there was no significant difference between the two groups in the mean bone mineral density of hip and femoral neck; the mean value of serum calcium and phosphorus concentration product and BGP in exercise group were higher than those in control group ($P < 0.01$), ALP was also higher than that in control group ($P < 0.05$), and tartrate resistant acid phosphatase was slightly lower than that in control group Group A ($P < 0.01$). Conclusion long term after class training can effectively improve the bone mineral density and bone quality of middle school girls, which is conducive to the improvement of bone metabolism ability of middle school girls.

Keywords: After School Training; Middle School Girls; Bone Mineral Density; Bone Metabolism

1. INTRODUCTION

Osteoporosis (OP) is a systemic skeletal disease, the most serious consequence of which is fracture and the decline of quality of life. Therefore, in recent years, the research on prevention of osteoporosis has become one of the hot topics in many fields. Studies have shown that the youth before the age of 35 is the key period to obtain peak bone mass, and the increase of bone mass at this stage will have a positive impact on the improvement of bone peak value. If the bone peak value increases by 3% in women at this stage, the risk of postmenopausal fracture will be reduced by more than 20^[1]. Therefore, how to obtain a higher peak bone mass in youth has become a key issue in the prevention of osteoporosis in the elderly. Middle school is the key period of forming healthy habits, which plays an important role in shaping the healthy shape of youth.

If a good habit of extracurricular exercise is formed at this stage, it will undoubtedly have a good effect on the bone health of their whole life. Therefore, this study intends to compare the bone mineral density and bone metabolism indexes of middle school girls who participate in extracurricular training for a long time and do not often participate in after-school training. Objective to analyze the effect of extracurricular training on bone mineral density and bone metabolism ability of middle school girls, and explore the important value of extracurricular training in improving bone health level of adolescents, so as to provide useful reference for related research on improving peak bone mass of young women.

2. TOOLS AND METHODS

2.1. OBJECT SOURCE

30 healthy middle school students (control group) and 30 middle school students (Sports Group) who participated in long-term after-school training were selected as the test objects. After school training period of the exercise group was 2.42 ± 0.56 years, at least three times a week; the control group could participate in general fitness activities, but did not participate in systematic exercise. There was no difference in height and weight between the two groups.

2.2. TEST OF INDEX

All tests were conducted by the physical examination department of Zhoukou Hospital of traditional Chinese medicine. The subjects avoided eating high protein and greasy food one day before blood drawing. During the 5-25 days of the menstrual cycle, 10ml blood from the median elbow vein was drawn on an empty stomach in the morning. The serum was centrifuged at 3000 rpm for 5 minutes to separate the serum. Then the serum was packed into EP tube and sealed and stored in -80°C ice box for use. Serum calcium (CA), phosphorus (P) and alkaline phosphatase (ALP) were measured by Japanese modular automatic biochemical analyzer and original reagent; BGP and Tracp5b were measured by enzyme-linked immunosorbent assay (ELISA) and S200 enzyme-linked immunosorbent assay (S200) produced by thermo company in the United States. Bone mineral density (BMD) of the left hip (femoral neck, ward triangle, greater trochanter) and lumbar posterior anterior position (L2) were measured by lunar prodigy dual energy X-ray absorptiometry.

ACADEMIC PUBLISHING HOUSE

2.3. STATISTICAL TREATMENT

All data and statistical results were processed by Microsoft Office Excel 2003 and SPSS11.5 statistical software.

3. RESULTS

3.1. COMPARISON OF BONE MINERAL DENSITY BETWEEN EXERCISE GROUP AND CONTROL GROUP

Table 1 descriptive statistics of bone mineral density in exercise group and control group (g / cm²)

Index	group	N	mean	Standard deviation	standard error
femoral neck	exercise group	30	0.84	0.074	0.012
	control group	30	0.80	0.064	0.011
In Ward's triangle	exercise group	30	0.79	0.078	0.073
	control group	30	0.71	0.697	0.045
large rotor	exercise group	30	0.78	0.188	0.084
	control group	30	0.69	0.030	0.072
L ₂	exercise group	30	1.02	0.088	0.003
	control group	30	0.89	0.051	0.098

Table 2 independent sample t-test results of BMD indexes in exercise group and control group

Index	Variance homogeneity test			T test					
	F	Sig.	T	df	Sig.	deviation	standard error	95%confidence	
								min	max
Femoral neck	1.468	0.221	2.267	59	0.100	0.103	0.016	0.070	0.136
Ward triangle	2.494	0.000	6.129	59	0.000	0.143	0.023	0.026	0.159
Large rotor	2.160	0.000	5.800	59	0.007	0.188	0.039	0.030	0.146
L ₂	2.090	0.000	5.719	59	0.000	0.175	0.093	0.005	0.144

Table 1 shows that the BMD values of ward triangle, trochanter and lumbar L₂ of female middle school students in the exercise group are higher than those in the control group. The t-test results between the two groups show that there are very significant differences between the test indexes ($P < 0.01$), see Table 2). It is suggested that long-term participation in after-school

training can effectively improve the female middle school students The bone mineral density (BMD) value of raw materials.

3.2. COMPARISON OF BONE METABOLISM INDEXES BETWEEN EXERCISE GROUP AND CONTROL GROUP

Table 3 Descriptive statistics of bone metabolism indexes

Index	group	N	mean	Standard deviation	standard error
Ca(mmol/L)	exercise	30	2.411	0.067	0.01
	control	30	2.241	0.032	0.00
P(mmol/L)	exercise	30	1.583	0.069	0.01
	control	30	1.575	0.043	0.01
AIP(U/L)	exercise	30	117.347	5.331	0.68
	control	30	114.135	8.007	1.10
BGP (μg/L)	exercise	30	8.457	0.197	0.03
	control	30	7.851	0.058	0.01
TRACP5b (μg/ml)	exercise	30	2.568	0.079	0.01
	control	30	2.582	0.096	0.01

Table 4 independent sample t test results of bone metabolism indexes

Index	T	df	P	Standard deviation	standard error
Ca	6.95	59	0.00	0.07	0.01
P	0.78	59	0.44	0.01	0.01
AIP	2.55	59	0.01	3.21	1.26
BGP	11.57	59	0.00	0.61	0.03
TRACP-5b	-8.83	59	0.00	-0.15	0.02

It can be seen from the research results (see Table 4) that the content of serum calcium in the exercise group

is higher than that in the control group ($P < 0.01$), and the mean value of BGP is also higher than that of the control group ($P < 0.01$); the serum alkaline phosphatase of the exercise group is higher than that of the control group ($P < 0.05$), and the tartrate resistant acid phosphatase of the exercise group is slightly lower than that of the control group ($P < 0.01$), but the changes of serum phosphorus content are also observed Not obvious. It is suggested that long-term extracurricular training can not only enhance the activity of osteoblasts, promote bone synthesis, but also inhibit the activity of osteoclasts and bone resorption.

4. DISCUSSION

4.1. THE EFFECT OF LONG-TERM EXTRACURRICULAR TRAINING ON BONE MINERAL DENSITY OF FEMALE MIDDLE SCHOOL STUDENTS

Bone mineral density is an important indicator of bone quality, which is highly positively correlated with bone strength, and is a very important fracture prediction index [3]. The bone mineral density of ward triangle, greater trochanter and lumbar L2 in the exercise group were higher than those in the control group ($P < 0.01$), indicating that long-term participation in extracurricular training can effectively improve the BMD of female middle school students. The main reason may be that various high-intensity exercises during extracurricular training significantly increase the vitality, oxidation capacity and blood flow of human muscle cells, and constantly increase the muscle mass and muscle contraction force of the human body, and the muscle mass is positively correlated with the bone mass . [4]Muscle contraction is an important factor in increasing bone mass, which is conducive to promoting bone formation and bone mineral deposition. Second, it may be because after-school training is an outdoor exercise, long-time sunlight is conducive to increase the synthesis of vitamin D and promote the absorption of calcium. In addition, after-school training can increase the appetite of female middle school students, the intake of nutrients is relatively increased, which increases the absorption of nutrients, especially calcium and phosphorus. The increase of blood calcium content is conducive to the transport of blood calcium into bone and bone breaking Cell to osteoblast transformation, inhibit the release of bone calcium, reduce bone loss, thereby enhancing bone mineral density.

4.2 THE EFFECT OF LONG-TERM EXTRACURRICULAR TRAINING ON BONE METABOLISM OF FEMALE MIDDLE SCHOOL STUDENTS

Calcium and phosphorus are the main components of human bone tissue. The relative stability of serum calcium and phosphorus content mainly depends on the human body's ability to absorb and excrete calcium and phosphorus, which is mainly regulated by vitamin

D3, parathyroid hormone, calcitonin and other related hormones. The content of calcium and phosphorus in human serum can indirectly reflect the situation of bone metabolism [5], and only when the product of calcium and phosphorus concentration is greater than $40 \text{ Mg}^2 / \text{dl}^2$ can bone tissue be ensured to carry out anabolism (calcium: $1 \text{ mmol} / \text{L} = 4 \text{ mg} / \text{dl}$; phosphorus: $1 \text{ mmol} / \text{L} = 3.5 \text{ mg} / \text{dl}$). As the calcium content of the exercise group was slightly higher than that of the control group, the calcium phosphorus concentration product ($53.4 \text{ Mg}^2 / \text{dl}^2$) was also slightly higher than that of the control group ($49.4 \text{ Mg}^2 / \text{dl}^2$). The reason may be that the naked skin received more ultraviolet radiation during long-term outdoor training, which effectively promoted the skin to synthesize more endogenous vitamin D3, and D3 was conducive to the absorption of calcium.

Most of the serum osteocalcin (BGP) is produced by osteoblasts in vivo and released into the blood. The BGP value will vary with age and bone turnover rate [6]. Therefore, BGP has unique significance in reflecting the instantaneous bone turnover level of human bone tissue and evaluating the bone metabolism state of human body. The average BGP value of female middle school students in exercise group is higher than that in control group, which indicates that long-term class is conducted The rest training is beneficial to improve the level of bone formation and bone turnover, and improve the state of bone metabolism. Alkaline phosphatase (ALP) is an important protein involved in bone metabolism. About half of ALP in blood comes from bone tissue, and most of the rest comes from liver. It is generally believed that if there is no other hepatobiliary disease, the activity of ALP in serum will increase, indicating that the activity of human osteoblasts increases More active state. The ALP of the exercise group was higher than that of the control group ($P < 0.05$), indicating that long-term after-school training can enhance the activity of osteoblasts and promote bone synthesis.

Tartrate resistant acid phosphatase (tracp-5b) is one of the most important indicators of bone metabolism, which can reflect bone resorption in time. It is mainly released by osteoclasts during bone resorption. Studies have shown that the change of tracp-5b in blood is obviously earlier than that of bone mineral density [7]. When the content of tracp-5b in blood increases, it indicates the activity of osteoclasts and the role of bone resorption Used to enhance. Tracp-5b of exercise group was lower than that of control group, and the difference of mean value between groups was very significant ($P < 0.01$). It is suggested that long-term exercise training can help to inhibit the activity of osteoclasts. Combined with the above results, it is suggested that long-term exercise training can not only enhance the activity of osteoblasts, promote bone synthesis, but also inhibit the activity and absorption of osteoclasts.

To sum up, long-term after-school training can effectively improve the bone mineral density and bone quality of middle school girls. The bone mineral density of middle school girls in the after-school training group is generally higher than that of students who do not exercise regularly, and the product of serum calcium and phosphorus concentration is higher than that of the control group. Long term after-school training is not only conducive to improving their own bone formation and bone turnover level, but also helps to improve middle school girls Bone metabolism. However, due to the existence of individual differences, it is suggested that before guiding middle school girls to participate in after-school training, they should pay attention to do a good job in health examination. For students who are not suitable for participating in intensive training, they should be guided to actively participate in physical exercise to improve their physical health.

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Talk Briefly About the Effective Measures to Improve Family Education

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Abstract: At present, there are a lot of educational theoretical researchers have carried out research and practice on family education and achieved a lot of harvest, but the problems of family education on the adolescent what harm to involve less, in the cause analysis and measures to put forward focused on the parents on the one hand. In this paper, family, school, and government are organically combined. She talks about how to improve family education.

Keywords: Family Education; Teenagers; Moral Accomplishment

1. PARENTS CONSTANTLY IMPROVE THEIR OWN QUALITY

The first education people receive from birth is family education. The quality of family education is directly related to the health of teenagers. However, there are some problems in the education of teenagers by contemporary parents, and these problems will affect the healthy growth of teenagers. Therefore, to explore the problems of family education in the growth of adolescents, and constantly find out the countermeasures, can constantly improve family education, so as to better promote the healthy growth of adolescents and lay a solid foundation for the development of the country. In order to give full play to the effect of family education on the growth of young people, parents, schools and the government need to work together [1-2].

Modern society is a constantly changing society. Only by keeping pace with The Times can people better adapt to the changing society, which requires people to establish a lifelong learning attitude. Especially for home educators, because parents are the implementor of family education, only parents' own quality is constantly improved, in order to better guide and promote the healthy growth of teenagers.

First, parents should constantly improve their knowledge level. Knowledge represents vision. Only with certain knowledge can parents better educate and cultivate their children. First of all, parents should change their own ideas and establish a lifelong learning attitude. From the heart to enhance the desire and enthusiasm for learning, parents only desire to learn the heart, will be active to learn. Secondly, take the initiative to understand some advanced educational perspectives. Through the network, television, books and other means to understand the education of some famous educators thought, only to understand and

really understand the advanced views of education, parents can see their own educational concept of inadequacy and defects, in order to effectively change their educational views. Finally, take the initiative to learn advanced educational concepts. Practice is the main source of knowledge, and only through practical actions can we better acquire knowledge. This requires parents to practice, practical through learning, to obtain the essence of advanced educational concepts, so as to constantly improve their own educational concepts. In daily life, parents to use their spare time on reading and studying to do every day there are new harvest, can not only stay in oral learning, only in this way can parents learn to build democratic family education atmosphere, in the process of education child is more likely to adopt democratic way of education, can better to promote the positive development of children.

Second, parents should lead by example. Family education is the first education that people receive from birth. Family education runs through people's growth from beginning to end. As the first education person for children, parents' behavior has a very important role model and demonstration for children's growth. Every child from the beginning of birth is a piece of white paper, they are in the parents, teachers and social education is slowly painted color, this requires parents in the family education to pay attention to the role of example, with practical action to lead the children to struggle and grow. In daily life, parents should be honest and trustworthy, to treat people honestly. The influence of parents on children occurs in a subtle process. If parents pay attention to the cultivation of moral character in daily life, children will have good moral character under the long-term education and influence of parents at home. On the contrary, if the parents themselves do not speak integrity, do not pay attention to the cultivation of moral character, will only blindly request the child, even in the daily education, do not strengthen the cultivation of moral character, the child may not pay attention to the cultivation of moral character.

Third, parents should constantly enhance their own educational ability. Ability is the comprehensive quality reflected when we deal with problems. Only when parents' ability is enhanced, can they better deal with the relationship between themselves and their children in family education and let family education play its due role. First of all, parents should strengthen

the communication and exchange with their children. Only by understanding the true thoughts of children can education find the entry point and make family education achieve good results. If parents ignore their children's wishes, the effect of family education will be less effective. Secondly, we should constantly enrich our knowledge to update our viewpoints. Parents' views will be constantly updated only if they continue to enrich their knowledge. On the one hand, parents can continuously enrich their own knowledge through reading, on the other hand, they can also supplement their own educational knowledge by going to some special tutoring institutions. Finally, we should reflect on the shortcomings of our own educational process. Everything has its shortcomings. Only by understanding and improving our own shortcomings can we make continuous progress. Parents can reflect on their own shortcomings and shortcomings in family education and make positive improvements, so as to continuously enhance their own educational ability.

2.SCHOOLS SHOULD STRENGTHEN GUIDANCE AND ASSISTANCE TO FAMILY EDUCATION

Some parents do not know how to educate their children properly because of their limited knowledge. In their point of view, they always believe that as long as they can have children, they can raise them. However, they do not understand that raising children is not simply to raise them, but to educate them to become useful people for the country and the society. The starting point of a lot of family education is good, the purpose is to let children can grow up to become useful, but some parents don't know the rule and characteristics of children physical and mental development, so as to take the wrong way of education in the family education, family education has the opposite effect, in order to change this kind of phenomenon, need to guide and help the family education school.

First, understand the situation of family education. School educators should strengthen communication and contact with parents to actively understand the situation of students' family education. On the one hand, schools can organize special education staff, specially responsible for the communication and contact with the parents of teenagers. On the other hand, the school can regularly hold a class teacher, teachers and students' parents to participate in the symposium, in a timely manner from the parents to understand the situation of students' family education. Second, to explain advanced educational concepts to parents. Report the parent training class, let the special teacher have a plan, targeted to explain the advanced educational concept to the parents, so that the parents can constantly update their own educational concept, better to educate the growth of children. On the one hand, teachers should guide parents to understand the

purpose of quality-oriented education, is to cultivate the moral, intellectual, physical, aesthetic and labor comprehensive development of children, so that parents know that the cultivation of children is not only the development of intelligence is a way out, understand that parents should fully respect their children, guide their children, rather than blindly to force children. On the other hand, teachers should guide parents to view children's growth objectively and make parents understand that learning is important but moral education is more important. If children only learn but do not have good character, it is likely to go wrong. Moral character is the foundation of our life. If we lose it, how can children stand firm in the society, let alone achieve the results expected by their parents, so as to continuously promote the progress of family education.

Third, to explain the scientific method of education to parents. On the one hand, through the explanation of those cases in which scientific education methods can cultivate outstanding talents, parents can know that there are not only two ways to educate children: scolding and beating, but also a variety of educational methods, such as encouragement and praise. On the other hand, parents should be helped to correctly understand and grasp the laws and characteristics of adolescent physical and mental development, so that parents should know and learn to adopt different educational methods at different stages to comply with and utilize the laws and characteristics of adolescent physical and mental development, so as to carry out family education for adolescents.

Fourth, school educators should actively guide students to return to family education. A lot of children because of parents unreasonable education and produce rebellious tired of family education psychology, so that family education can not get results. School educators should actively guide children to realize their parents' love, let them learn to look at their parents' education in another way, let them feel their parents' love for them, so that they are willing to enter their parents, willing to accept their parents' education. Only children are willing to go into the family, they will be willing to accept family education, in order to let family education play its due role.

3.THE GOVERNMENT CREATES A GOOD SOCIAL ATMOSPHERE FOR FAMILY EDUCATION

"Children belong to their parents, families and society". Meanwhile, "the development and progress of education cannot be separated from the role of external environment", which plays an important role in the development of education. Therefore, we should give full play to the role of society to create a good social atmosphere for family education.

First, we should increase material support for family education. First of all, we should increase financial investment in parents' schools so that parents can

constantly enrich their own knowledge and change their own concepts through learning, so as to continuously attach importance to family education. Secondly, parents should be guided to pay more attention to family education by seeking and rewarding good family education models. Finally, more material support should be given to research projects related to family education, as well as speeches and cultural activities.

Second, purify the unhealthy factors in the social and cultural environment. He who keeps company with ink will become black. A good environment can promote one's development, while a bad environment can hinder it. Nowadays, with the development of social network, people have more and more ways and means to get in touch with the network. With the development of the Internet, all kinds of imperfect information are constantly presented in people's vision, so we must pay attention to the purification of social and cultural environment. On the one hand, the government can publicize the disadvantages of utilitarianism education thoughts through radio, TELEVISION, newspapers, magazines and the Internet, and at the same time strengthen the supervision over the Internet to reduce the frequency of utilitarianism speeches. , on the other hand, the government can through cultural policy to guide people to correctly recognize success, positive use of the mass media to promote the moral education practitioners, through good education for those who pay attention to cultivate children good moral character case, to guide parents to change education idea, to cultivate the usual mentality of parents.

Third, it is necessary to form a positive network public opinion. First of all, the government can explain and publicize the negative cases that bring harm to the growth of children due to the wrong way of education through TV news columns, so that people can truly realize the bad influence brought by the wrong family education, so as to guide parents to pay more attention to the cultivation of good family education. Secondly, through the network, newspapers, books and other

mass media to actively promote the importance of good family education, through the good family education model to find and learn, form a positive publicity, so that the whole society to strengthen the importance of family education. Finally, special personnel and institutions should be organized to continuously publicize the importance of family education to the parents of teenagers through lectures, speeches and various artistic activities.

Fourth, we should vigorously promote quality-oriented education and bring family education legislation into the legislative plan. On the one hand, by means of the Internet, newspapers, magazines and other means, parents can effectively recognize, understand and support quality education, and form a good trend that the whole society advocates quality education. Only by accepting quality education can parents change their own educational concepts from the bottom of their hearts. On the other hand, the family education legislation into the legislative plan. The provisions of the law is hard and every one of us can't touch the bottom line, through the law explicitly stipulated teenage parents minimum level, should have what kind of knowledge in the form of laws and regulations specify what kind of family education way is wrong and is banned in law, and actively guide the young parents to the education way to avoid these mistakes, pay attention to and improve constantly to make family education.

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An Analysis of University Archives Informationization Management Methods in The Internet Era

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Abstract: At present, the archives information of each university has made progress to a certain extent. In practice, there are also some problems, such as low degree of archives informatization, insufficient openness of archives information resources, new characteristics of archives security, low degree of specialization of archives management team and backward infrastructure. In view of these problems, we should strengthen network security management, unify the application standard of archival informationization management, accelerate the development of archival informationization management software and so on, in order to improve the level of archival informationization management.

Keywords: Internet era; Archives informatization; Archives management; Informatization; Countermeasures

1. THE IMPORTANCE OF ARCHIVES INFORMATION MANAGEMENT IN UNIVERSITY MANAGEMENT

In the Internet era, the traditional archives utilization has been unable to meet the practical needs. Only by realizing the informationization of archives can we standardize the management of massive and diversified archives, improve the effect of archives utilization, and give full play to the service role of archives in teaching, scientific research and administrative management of colleges and universities. At present, China's relevant systems clearly stipulate that the archives institutions of higher learning need to compile retrieval tools, compile and research archives and publish historical materials, and develop archival information resources. At the same time, organizing and implementing the information construction of archives and the archiving of electronic documents. The information management of university archives is of great significance.

Information management of archives is an important channel to realize smart campus. Smart campus refers to a smart integrated campus work, study and life environment based on the Internet of Things. The construction of smart campus needs archival information as support. In the background of the Internet era, the types of archives are increasingly complex and the number of electronic archives is

increasing day by day. If information management is not carried out, it is difficult to achieve a smart campus.

It is beneficial to standardize the collection, arrangement, and utilization of archives, facilitate the inquiry of archives and improve the efficiency of archives utilization. It is an important measure to respond to the national construction of digital archives by using computer assisted management to make archives management from traditional paper to digital management. Traditional paper file management cannot quickly access to the specific information of each student. Now many colleges and universities will be digitalized scan of student files, students as long as input their name and student number, can look up all the information of personal files in school, greatly improving the level of archives utilization.

Carrying out information management of archives is conducive to expanding the field of archives service. The development of information management of archives can provide multimedia, electronic archives and other channels of services; broaden the field of archives services. Colleges and universities can also, according to their own characteristics, carry out characteristic file services. Binding of the application materials, school annual inspection materials, the implementation of the file information management, can directly refer to the electronic files, print.

Once the school's scientific research archives, because there is no information management, the utilization rate is very low. Now our school has also digitized scanned and attached the scientific research archives in the file system, which can be directly used and plays an important role in the school's professional evaluation and application.

Traditional file utilization is mainly based on paper files. In the process of file establishment, storage and use, paper files need a lot of manpower, material resources and financial resources, and the utilization efficiency is low. It is not good for the protection of archives to copy and browse paper archives frequently. After the realization of catalog database and full text digitization management, the files can be directly read and printed in the file management system, which improves the efficiency of file utilization and effectively protects paper files.

2. THE DILEMMA OF UNIVERSITY ARCHIVES INFORMATIONIZATION MANAGEMENT

First of all, the degree of university archives informatization is low. The core of archival informationization is the construction of archival information resources. The construction of archival information resources mainly includes catalog database, full-text database and multimedia database. At present, the vast majority of colleges and universities have only implemented the directory database. Because the information construction of archives is a slow process, few colleges and universities realize the digitization of full text. Furthermore, universities that realize full text digitization only realize full text digitization for departmental archives, such as student files, document files, etc., few realize full text digitization for capital construction files, teaching files, etc.

Secondly, the openness of archival information resources is insufficient.

The lack of openness of archival information resources is reflected in two aspects. On the one hand, there are very few information resources open to the archives of colleges and universities, only for a few categories of archives. There is very few information resources open to the public, and many archives information resources are still not open to the public, requiring cumbersome approval procedures. At present, only documents and files are open in our school, and the information management of capital construction files and teaching files has not been realized yet. On the other hand, the archives among colleges and universities have not realized resource sharing, and the archives information resources of each college and university are all closed individuals without a sharing platform. A lot of students in the field because of the work needs to review the admission of new records and other files, but also need to deal with the school in person to borrow procedures, unable to carry out the file borrowing application and approval procedures on the Internet.

Thirdly, file security presents new features. In the information and electronic environment, the security and protection of archives are facing a more severe situation. In addition to preventing the leakage of information, the security of carrier and technology should also be considered to prevent the loss, distortion and unavailability of digital information[1]. Finally, the professional level of the archives management team is not high. In the information management of archives, managers are not only required to have professional knowledge of archives management, but also required to be familiar with computer operation and have good expression ability. At present, many archives management teams in colleges and universities are from non-archives and computer majors with low degree of specialization, which makes it difficult to meet the needs of archives information management. In particular, the contingent of part-time archivists in colleges and universities is

extremely unstable and flows frequently. Information management of archives is based on talent team. People is the most critical factor of file information management.

At present, the quality of archives management team in colleges and universities needs to be improved urgently so as to meet the demand of archives informationization management in colleges and universities.

3. COUNTERMEASURES FOR THE IMPLEMENTATION OF ARCHIVES INFORMATIONIZATION MANAGEMENT IN COLLEGES AND UNIVERSITIES

Above all, strengthen network security management to ensure file security. With the gradual advance of the information construction of archives, the security situation of archives is more serious. Therefore, it is necessary to strengthen network security management to prevent the leakage, loss and distortion of files. The computer with the file system should not be connected to the Internet. Backup the file directory database and digitize the full text regularly to prevent the loss of file information caused by the crash of the file server [2].

Secondary, unify the application standard of archives informationization management. Standardization is an important foundation and necessary condition for the development of the information construction of archives, which is directly related to the success or failure of the information construction and sustainable development. It is recommended to use the unified standard of archives to meet the needs of the diversity of archival information and to carry out the networking of massive archival information and the sharing of resources. China has issued a series of systems to standardize the information construction of archives, which plays a very important role in the information management of archives.

Furthermore, accelerate the development of archives information management software. File information management needs to rely on certain file information management software. The network version of Tsinghua Unisplendour archive management software is adopted by the archives department of our school, which can realize the functions of catalogue entry, retrieval and electronic file connecting. It also has some room for improvement, such as the ability of departments to download and view access cannot be separated, and so on. With the gradual advancement of archives informatization, the requirements for archives informatization management software will be higher and higher. The actual situation of each university is different, how to develop the file information management software suitable for different universities and different characteristics is still a problem to be solved.

In the end, strengthen the construction of informationized file management personnel team. At present, the professional quality of archives management team in colleges and universities needs to

be improved urgently. With the development of file information, file staff to keep up with the pace of The Times, master computer knowledge. But at present archival workers are busy with the basic business construction such as archival arrangement, input and borrowing, and seldom can participate in the training of professional construction of archival informatization. Therefore, schools and archives administration departments should increase the training opportunities of archives business. At the same time, to strengthen the archives training, improve the archives of the whole school staff awareness. The state, archives administration departments and school archives workers should constantly strengthen archives publicity; improve the awareness of all

archives. Only when the whole people pay attention to archives, can we do well the information work of archives and realize the information management of archives.

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Extraction Technology of Lycopene

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Abstract: The influence of extracting conditions lycopene were studied in this paper, which include the extracting impregnant, extracting temperature, ratio of solid to liquid, extracting time. The results showed that the optimum extracting conditions were as follows: extracting impregnant was chloroform, ratio of solid to liquid was 1:3 (g/mL), extracting temperature was at 35°C, extracting time was 2 h.

KeyWords: Lycopene; Extraction

1. INTRODUCTION

Lycopene is one of the natural carotenoids. Lycopene has free radical scavenging and antioxidant effects, which can slow down arteriosclerosis and reduce the incidence of cardiovascular disease[1-5]. It has been found that lycopene has a strong ability to quench singlet oxygen, which is also an important reason why it can inhibit the growth of cancer cells[6]. Lycopene can be used not only as a health food, but also in cosmetics, to achieve the purpose of anti-ultraviolet, healthy skin and beauty, anti-aging. In this experiment, lycopene was extracted from tomato by solvent extraction method, and its extraction process was studied in order to provide theoretical basis for the further development of this functional natural pigment.

1.1 Materials

Fresh tomato.

1.2 Reagents

Acetone, chloroform, methanol, n-butanol, ethyl acetate, etc.

1.3 Methods

1.3.1 Extraction of lycopene

The tomato paste was made by Fresh tomatoes mashed. A certain amount of tomato paste was taken, and suitable solvent was selected for extraction under different conditions, and then the extraction solution was obtained by filtration, and the absorbance was measured at 485 nm[7].

1.3.2 Optimization of extraction conditions of lycopene

The effects of different extraction solvents, extraction temperature, material-liquid ratio (mycelium mass: solvent volume) and extraction time on the extraction effect of lycopene were compared.

2 RESULTS AND ANALYSIS

2.1 Effect of extracting impregnant on extraction effect of lycopene

The tomato paste of the same mass was weighed and added to the same volume of extraction impregnant (chloroform, ethyl acetate, acetone, methanol, n-butanol) respectively. It was extracted for 2 h at

30°C, and then the extraction solution was obtained by filtration. The absorbance was measured at 485 nm^[7]. The results are shown in figure 1.

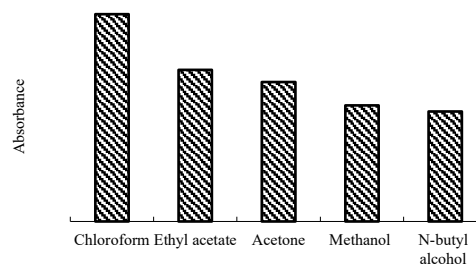


Fig.1 Effect of extracting impregnant on extraction effect of lycopene

The results of Fig.1 showed that the extraction effect: chloroform > ethyl acetate > acetone > methanol > n-butanol, chloroform has the best extraction effect and its ability to dissolve pigment is the strongest, so chloroform can be selected as the best extraction impregnant for extraction of lycopene.

2.2 Effect of extracting temperature on extraction effect of lycopene

The tomato paste of the same mass was weighed and added to the same volume of chloroform. It was extracted for 2 h at different extracting temperature (25°C \30°C \35°C \40°C), and then the extraction solution was obtained by filtration. The absorbance was measured at 485 nm. The results are shown in figure 2.

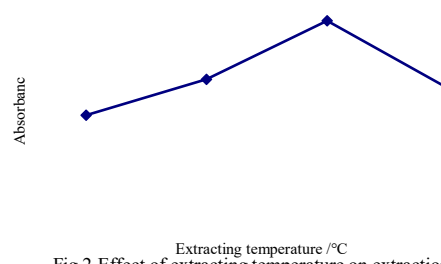


Fig.2 Effect of extracting temperature on extraction effect of lycopene

The results of Fig.2 showed that when the temperature was lower than 35°C, the extracting effect became better with the increase of temperature, the best was reached at 35°C, and the extracting effect became worse when the temperature increased again. Because the higher temperature will make the molecular diffusion plus, easy to dissolve lycopene in a certain temperature range; At the same time, with the temperature increasing the extraction solution will volatilize, lycopene is also easy to decompose at high

temperature, thus the extracting effect becomes worse. Accordingly, 35 °C was chosen as the optimum extraction temperature.

2.3 Effect of ratio of solid to liquid on extraction effect of lycopene

The tomato paste of the same mass was weighed and added to 1,2,3,4 times volume chloroform. It was extracted for 2 h at 35 °C, and then the extraction solution was obtained by filtration. The absorbance was measured at 485 nm. The results are shown in figure 3.

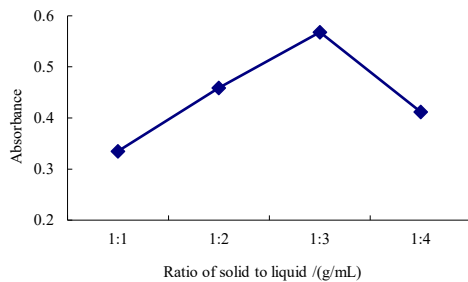


Fig.3 Effect of ratio of solid to liquid on extraction effect of lycopene

From the results of Fig.3, the extraction effect was the best when the ratio of solid to liquid was 1:3(g/mL). As the amount of solvent increased, the extraction effect showed a better trend, reached the best at 1:3(g/mL). When the extraction effect became worse when the amount of solvent increased again. So the optimal ratio of solid to liquid was 1:3(g/mL).

2.4 Effect of extracting time on extraction effect of lycopene

The tomato paste of the same mass was weighed and added to 3 times volume chloroform. It was extracted at 35 °C for different hours (1 h, 2 h, 3 h, 4 h), and then the extraction solution was obtained by filtration. The absorbance was measured at 485 nm. The results are shown in figure 4.

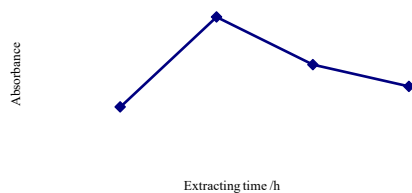


Fig.4 Effect of extracting time on extraction effect of lycopene

From the results of Fig.4, the extraction effect was the best when the extraction time was 2 h. When the

extraction time was less than 2 h, the extraction effect of lycopene became better with the increase of time, and more than 2 h the extraction effect became worse, which indicated that the extraction effect of lycopene could not be increased for a long time. So, the optimum extraction time was 2 h.

3. CONCLUSIONS AND DISCUSSIONS

In this experiment, chloroform, ethyl acetate, acetone, methanol and n-butanol were used as extraction solvents to compare the effect of lycopene extraction. The results showed that chloroform was the best extraction impregnant for lycopene. The optimum technological conditions were: extraction temperature 35 °C, ratio of solid to liquid 1:3(g/mL), extraction time 2 h. The raw materials used in this extraction method are cheap, easy to obtain, low production cost and easy to operate, but the extraction time is a little longer. We also need to improve the extraction method of lycopene to obtain the optimal and suitable technological conditions for industrial production.

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The Enlightenment of The Thought of Relative Concealment to Contemporary Legislation

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Abstract: The relative concealment system is an important legal system in ancient China. Its greatest value lies in the embodiment of the human nature foundation of the criminal law. The system of relative concealment went through the process of establishment, development, and perfection in ancient Chinese society. From a practical point of view, the system of "affinity concealment" has a certain guiding role for the legislation of criminal law in our country. Regardless of the development of any system in the history of China's criminal law, it has some enlightenment to the contemporary criminal legal system in China. The idea of relatives hiding is reasonable and cannot be completely abandoned. The purpose of this paper is to explore whether the relative concealment system can contribute to the current legal construction of our country and better build a harmonious society.

Keywords: Relative Phase Hidden; Cohabitation and Seclusion; Legislation Revelation

1. THE APPLICATION OF THE IDEA OF "RELATIVES HIDING" IN PROCEDURAL LAW AT HOME AND ABROAD

In ancient China, it took more than two thousand years from the germination of the idea of "relatives hiding" to the mature application of the system of "relatives hiding". The thought of "relatives hiding", which embodies the wisdom of the masses, must be beneficial to social development. Under the political background of promoting social harmony in modern China, the thought of "relatives hiding" is also beneficial to social development. The author believes that the most beneficial aspect of the idea of "relatives hiding" is to stabilize the relationship between family members. The family is the most basic element of the society. Only when the family is stable, can the society develop the economy stably. Only in this way can our country realize the ideal of building a harmonious socialist society.

"Relatives" thought not only used in China for over two thousand years, in the western countries also can see the figure of "relative phase implicit", in Italy that stipulated in the criminal procedure law in European countries: close relatives of the defendant, and the defendant have adopted and by relatives of the adoptive relationship, the defendants' cohabitation people (in this case, the cohabitation is not married and live together in a relationship), when the court requires

the people to testify, these relatives can not go.

French penal code in 1994 stipulated clearly know relatives is guilty of serious crimes and not to stop, to the criminal suspect or defendant guilty of serious crimes and joint crime is not close relatives of the criminal suspect, defendant, to provide the location of the hidden, that have been arrested or may be guilty and other evidence of innocence of the defendant, in order to protect the close relatives from criminal punishment but intentionally does not provide evidence to the court, are not subject to any criminal punishment; A person engaged to a criminal suspect or defendant, even a former spouse divorced from the accused person, may not testify.

In the criminal Code of 1817, Germany stipulated that relatives could conceal criminal ACTS from each other, such as making perjury to protect relatives from criminal punishment, helping relatives to escape legal investigation or obstructing the law enforcement to investigate the relatives' criminal responsibility. In 1953, it was added that relatives who had committed serious crimes but had not informed against them, but had tried their best to persuade them to repent and surrender, would not be punished. The application of the idea of "relative concealment" in German law is basically the same as that in French law.

It is also stipulated in the laws of countries of common law system such as The UK and the US: for the special crimes where relatives can conceal criminal ACTS from each other, it is specially stipulated that husband and wife can conceal criminal ACTS from each other without punishment; For the ACTS of concealing criminal ACTS and not telling the law to the personnel of relevant authorities such as the government, and for the ACTS of concealing criminal ACTS by close relatives who have not accepted any money or property, the provisions are not punishable; Criminal punishment shall not be imposed on those who help the criminal act by offering help to the close relatives of the main criminal suspect or the landlord for the maintenance of basic normal living conditions, and who try their best to persuade the criminal suspect to repent.

The idea of "relatives hiding" is also reflected in the legislation of Hong Kong, Taiwan and Macao. Hong Kong, Taiwan and Macao were all leased by western powers in the late Qing Dynasty, and their legislation to some extent has the characteristics of western Common law system.[1] Hong Kong law stipulates that in the criminal Procedure Law, if either husband or wife is

prosecuted, the other party may not testify. Macao law provides that a close relative who gives false testimony or refuses to testify for a criminal suspect may be given a mitigated punishment or be exempted from punishment. Similarly, the idea of "relatives hiding" is also reflected in The laws of Taiwan. If a spouse is within five relatives, blood relatives or in-laws help the criminal suspect to escape, the criminal punishment will be reduced, etc.

In the present legislation in our country, although the "criminal law" specific provision, everyone is equal before the law, anyone who knows case has the obligation to testify in terms, and in the XingSu forgery crime, the crime of concealing the murder and impeding witness crimes such as crimes, but in the new revision of the criminal procedure law in 2012 "relatives" thoughts had certain, although not explicitly exclude family obligation to testify, but there have been great relatives in court compulsory identify the provisions of the criminal suspect the fact. This provision explains that the spouse, parents and children of the defendant shall not be forced to identify the defendant's criminal act during the court hearing.

2. ENLIGHTENMENT OF THE THOUGHT OF "RELATIVES HIDING" TO CONTEMPORARY LEGISLATION

There must be profound historical reasons for the idea of "relatives hiding", which has been active for nearly two thousand years. To explore the reasons, there are no more than two aspects: on the one hand, the prevalence of Confucianism advocating "filial piety"; On the other hand, the application of the principle of "relatives are hidden" is the concern and recognition of the ethical and moral consanguinity in ancient China, which is conducive to the stability of the society and the rule of feudal rulers.

In China's modern national conditions, it is reasonable and necessary to reconsider the rationality of the idea of "relatives hiding" in order to conform to the historical trend of advocating the construction of a harmonious socialist society under the background of the difficulty of witness testifying in court and the fact that foreign countries criticize China's lack of human rights year after year. However, our country's application of this idea in legislative activities is very rare, we need to think rationally, prudently apply the system, combining the dynasties and successive dynasties and the application of the system at home and abroad, when introducing the system, we have to consider some situations in combination with the current national conditions.

First, "relatives hidden" relatives include what. Some scholars believe that the scope should be the same as the scope of relatives who are forbidden to marry by law, but the author believes that the scope of relatives should be limited to parents, spouses and children. If the scope is expanded, it may affect social order, social fairness and judicial justice. If everyone who

committed crimes can be hidden by many people, then the cost of crime will be reduced and more people will commit crimes, which is not conducive to social stability and harmony.

Secondly, what are the crimes that relatives can conceal from each other in the idea of "relatives hiding"? Combined with the experience of ancient legislation and the current situation of legislation at home and abroad, we should make it clear that the criminal ACTS endangering national security and some extremely serious criminal ACTS should not be concealed from each other. Because the essence of a country is the essence of a nation, if a country's security is threatened or the society makes people feel insecure, then it proves that the country's judiciary is a failure, is not adapted to the national conditions.

Third, what are the rights of relatives in the "relative concealment"? If not all the close relatives can not testify in court or disclose, the legislation should also clarify how to implement this right and how to guarantee the implementation of this right and a series of issues.

Fourth, how to help relatives to conceal criminal behaviors in "relatives hiding". That is, how to conceal the crime, is simply not to testify against the defendant, or can protect relatives to destroy evidence, and so on. In the author's opinion, only close relatives can not identify the crime committed by the criminal suspect, and depending on the circumstances, the criminal suspect can be concealed. These specific legislative aspects need to be explored and studied in the later legislative practice.

Fifth, the criminal act of harming each other between relatives cannot be concealed. The purpose of introducing the idea of concealment of relatives into the legislation is to protect the kinship between people. We should severely crack down on the criminal behavior between relatives and never tolerate it.

Sixth, official ACTS should not be included within the scope of relatives' privacy. Functionary ACTS here refer to the functionaries of state organs and other social organizations and organizations entrusted by state organs who are public servants of the people and endowed by the people with the power. In the process of exercising their functions, ACTS infringing on the interests of the people cannot be concealed.[2]

The idea that relatives are hidden shines the wisdom of working people in Our country, which the author thinks can be used to serve the modern legislation.

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Four Points to Improve the Scientific Research Ability of Liberal Arts Graduate Students

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Abstract: The improvement of the scientific research ability of liberal arts graduate students is an important work related to the personal growth and success of liberal arts graduate students, the quality of postgraduate training in China, and the future development plan of the country and the nation. There are four important links to improve the scientific research ability of liberal arts graduate students: solid basic theoretical knowledge, strong ability to collect data, frequent academic exchange activities and timely tutor guidance education.

Keywords: Graduate students in liberal arts; Scientific research ability; Scientific research; To improve

1. MUST BE BASED ON SOLID BASIC THEORETICAL KNOWLEDGE

Scientific research ability is not only a reflection of graduate students' own ability and level, but also an important indicator to measure the success of China's graduate education. As an important part of the graduate team, liberal arts graduate students are an important force to activate academic atmosphere, enrich social culture and promote people's liberation of mind. Liberal arts graduate students can improve their scientific research ability from the following four aspects [1-2].

Solid basic theoretical knowledge of the subject is the internal requirement of constructing a complete system of subject knowledge. The relationship between basic theory and discipline is equivalent to the foundation of a building [1]. Solid theoretical knowledge of the subject is an urgent need to adapt to the rapid updating of knowledge in the information age. Any specific knowledge is in danger of becoming obsolete, especially in the information age when knowledge is being replaced at an ever faster rate. It is possible to avoid spending too much effort in learning too much specific knowledge that is updated quickly and easily outdated. Relatively speaking, the updating of basic theoretical knowledge of each discipline is often relatively slow. What we have learned is likely to guide the practice of production, life and scientific research for decades or even longer, as long as there is no significant innovation of a complete theoretical system in the corresponding discipline within a short time. The liberal arts graduate students, therefore, universal education discipline basic theory knowledge, whether to set up system and comprehensive understanding of speciality, and encouraging them to

establish the overall concept, to master relevant disciplines applied research methods in order to better guide the future research is not only necessary, but also must be. About discipline basic theory knowledge education in the future, you can try from teachers change the traditional way of teaching for modernization of flexible and varied teaching methods and urged the students to find their interest coordination with the teachers' teaching, the method of combination of improved liberal arts scientific research ability of graduate students as a real problems get solved level, rather than just a dispensable between tutors and graduate students in universities graduate students.

2. IT MUST BE BASED ON A STRONG ABILITY TO GATHER INFORMATION

Data are generally divided into two types: primary data and secondary data. The so-called primary data refers to the data obtained by oneself through field research or investigation without any processing or whitewashing. Secondary information refers to the information about the emergence, development and extinction of things obtained from books or other people through reading, interviewing and other ways. By looking up secondary data, we can find materials and information that are helpful to our research from previous research results, and know which problems have been thoroughly studied by predecessors and which problems have been inadequate by predecessors. In this way, we will stand on the shoulders of our predecessors to start a new or a more in-depth study of a certain problem, do not take or less detours. The first-hand information obtained through my own field research and investigation can avoid the distortion of information caused by the subjective preference of the processor in general second-hand information. Because it is personal experience, often can make people get more profound experience. Both primary and secondary data are essential for scientific research. For liberal arts graduate students, the ability to gather data largely determines how far they can go in their research on a problem and their ability to get to the bottom of an issue. It is just as impossible for people engaged in research on rural issues to achieve valuable results in their research field without conducting field research in rural areas to understand the bottleneck of rural development, difficulties in agricultural development and the current situation of farmers' life. Schools or training institutions for postgraduates

should pay attention to the course of data retrieval for postgraduates and provide necessary hardware and software resources for data collection for postgraduates. Through the introduction of the importance of data retrieval and the training of relevant skills and skills, the awareness and ability of data collection of graduate students can be improved to lay a foundation for the research work. Graduate students should set up the awareness of data collection, make it clear that data collection is the basis of scientific research, study the course of data retrieval seriously, and make good use of the library and the Internet, the two major sources of information. At the same time, we should pay attention to weeding out the rough and selecting the best and discarding the false and retaining the true. We should consciously resist illegal and undesirable information and try our best to avoid the adverse effects brought by the explosion of information in the network era.

3. REGULAR ACADEMIC EXCHANGES MUST BE THE MEANS

The exchange of ideas or views among different people around a common topic can open students' horizons and make them think from multiple perspectives, which is of great benefit to the improvement of the scientific research ability of liberal arts graduate students. Because different people have objective differences in life experience, knowledge reserve, mind vision and personality characteristics, etc., different people may come to different views or even completely opposite conclusions on the same issue. In the process of academic communication, it is likely that a careless word from a student or teacher can open their minds and arouse their imagination. This kind of collision of ideas can often have unexpected effects, inspiring brilliant sparks of wisdom that cannot be generated under normal conditions. This is especially true for liberal arts graduate students with active thoughts and rich emotions. At present, there are three main forms of academic exchange activities that are easy to be used by liberal arts graduate students. The first is the discussion with professional students in class on a problem assigned by the teacher. The second is the academic reports of experts and scholars on and off campus. The third is academic conferences at home and abroad. By actively participating in these academic exchange activities, graduate students can not only avoid some detour by summarizing the scientific research lessons of experts and scholars, but also accumulate some necessary scientific research methods for their own research. They can also broaden their knowledge and fill their mind with the knowledge of different disciplines by listening to the reports of experts and scholars from different majors or disciplines^[2]. It also enables them to keep abreast of the frontiers of the discipline, track the latest developments of international science and technology,

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and grasp the future development trend of the discipline. And then enhance the purpose and planning of learning and research. It can be said to be an effective method to improve postgraduate research ability.

4. MUST BE SUPPORTED BY TIMELY MENTORING

The tutor is the guide for postgraduate study and scientific research, and is the model for postgraduate to engage in academic activities. The guidance of the tutor and the research ability and level of the tutor have a great impact on the graduate students. A teacher who CARES about students and has a rigorous attitude towards scientific research activities will definitely demand his students strictly. Accordingly, his students can improve their scientific research ability quickly in learning. If a tutor is absorbed in his own studies and neglects the guidance of his students, even if he does his own research well, he loses his duty as a teacher because of his neglect of his students, he is certainly not a good tutor. There is a big difference between postgraduate study and undergraduate study in which students can get good grades by passively accepting knowledge. Initiative and specialty are the new characteristics of postgraduate study. However, this kind of initiative and professionalism, if not timely and correct direction guidance, its trend may also be wrong. In this case, the tutor's timely guidance and education are of great significance to the postgraduate study and research. Tutors' guidance on postgraduate study and research can be achieved in the following ways.

First of all, on the basis of combining graduate students' personal interests, professional basis and their own expertise, help students establish research direction as early as possible, so that graduate students can enter the stage of purposeful and directional learning as early as possible. Secondly, boldly let students participate in their own scientific research projects, stimulate the enthusiasm of graduate students in scientific research, from which to exercise their ability to write academic papers.

Finally, takes the mentor group collective guidance for graduate students, through the proficient in various research fields of collective guidance, let graduate students from various with different academic style and feel the charm of different knowledge background of tutor, the benefit of the influence of the different, and develop their own academic field of vision, enrich their knowledge.

In short, the improvement of scientific research ability of liberal arts graduate students is not a problem that can be solved overnight. It requires the joint efforts of graduate training institutions, graduate tutors and individual graduates. It is a work that needs constant exploration, continuous summary and continuous transcendence. Perhaps these methods are only a survey of many methods to improve the scientific research ability of liberal arts graduate students, but on

the basis of what I have seen and felt, some practical methods and strategies to improve the scientific research ability of liberal arts graduate students are summarized, which must be what every academic colleague should and is very willing to do.

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BP Neural Network Model Forecast of PM_{2.5} based on Fuzzy Logic Control

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Abstract: In order to optimize the BP algorithm and achieve better prediction effect of PM_{2.5}, an improved algorithm based on BP neural network is proposed based on the monitoring data of PM_{2.5}, PM₁₀, NO₂, temperature, wind speed and other factors in Shanghai. Firstly, the partial least square method was used to select the auxiliary data related to PM_{2.5} and combine with necessary meteorological data. Then, the fuzzy control theory was used to quantify the factors that cannot be quantified. Finally, BP neural network and fuzzy logic control are used to establish a prediction model to analyze the experimental data. The experimental results show that the method has fast real-time speed and can effectively realize the prediction of PM_{2.5}. Compared with some existing algorithms, the method has smaller error and higher accuracy, and has better generalization ability to deal with difficult prediction problems in complex atmospheric environment.

Keywords: Pm_{2.5}; Prediction; Fuzzy Logic Control; Neural Network; Partial Least-Square Method

1. INTRODUCTION

In recent years, air pollution has always been the focus of attention, and it is also our urgent need to improve air quality. In particular, PM_{2.5} has a great relationship with air quality and haze weather. Haze caused by PM_{2.5} has repeatedly swept over many parts of the country, causing serious harm to people's living environment [1]. If real-time prediction of pollutants affecting air quality can be made, it will play a positive role in taking environmental protection measures and reminding citizens to take health protection measures in advance. Therefore, the early prediction of PM_{2.5} plays a key role in preventing air pollution and taking effective preventive measures in advance.

At present, people have higher and higher requirements for improving precision. The traditional methods cannot meet the demand well [2-3]. Therefore, deep learning method is becoming a promising technology to predict nonlinear time series information such as meteorological and pollution data. Neural network model is widely used in the field of prediction[4-7]. However, the accuracy needs to be improved, more relevant input data and more other variables are needed to improve the prediction results. However, the above models and methods have not integrated the meteorological conditions and other

factors, which makes the prediction accuracy still has room for improvement. Therefore, it is necessary to incorporate meteorological parameters (such as temperature and wind speed) into the model [8-9]. However, for the influence factors such as weather that cannot be quantified, if it can be quantified, then the prediction time can be reduced and the prediction accuracy can be improved. For some data or parameters that cannot be clearly shown, corresponding models need to be established [10]. The results show that the well-trained network model can successfully fit and predict the experimental data, and the fuzzy inference system has the highest predictive ability and achieves a good prediction effect. So, in this paper, fuzzy logic control and BP neural network are integrated (FLC-IBP) to predict PM_{2.5} concentration. The experimental results show that the prediction effect of fuzzy neural network has better prediction effect, and the accuracy is improved significantly.

2. MODEL

2.1 BP NEURAL NETWORK MODEL

Multi-level error back propagation network (BP network for short) is the most widely used, intuitive and easy to understand network at present. It is a multi-layer network that trains the weights of nonlinear differentiable functions. The data is input by the input layer, and the weights are transmitted to the next layer, that is, the hidden layer, which adds the weights of the inputs, converts them by activating functions and then transmits them to the output layer, which finally gives the predicted values of neural networks. The purpose of e-learning is to make the network produce close to the actual data. The following is a three-layer neural network structure diagram, as shown in Figure 1:

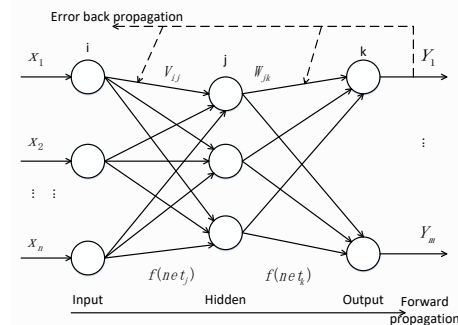


Fig.1 Neural network topological structure
Among them, x_1, x_2, \dots, x_n is the input value of the BP

network, Y_1, Y_2, \dots, Y_m is the predicted value of BP neural network, V_{ij} and W_{jk} is the weight associated with each neuron of BP neural network, i, j and k represents the unit number of input layer, hidden layer and output layer respectively, net_j and net_k are the net inputs of the hidden layer and the output layer respectively. The continuous and easily handled nonlinear transformation transfer function, namely *Sigmoid* function, is expressed as formula (1):

$$f(x) = \frac{1}{1+e^{-x}} \quad (1)$$

The outputs of the hidden layer and the output layer are respectively as formula (2) (3):

$$H_j = f(\sum_{i=1}^n V_{ij}x_i - a_j) = f(net_j) \quad j = 1, 2, \dots, l \quad (2)$$

$$O_k = f(\sum_{j=1}^l H_j W_{jk} - b_k) = f(net_k) \quad k = 1, 2, \dots, m \quad (3)$$

When that forward propagation of the signal is done, through the comparison between data, output data and ideal will exist an error between predicted and actual values, the error will continue to reverse passing through the network, continuously again and again by adjusting the parameters of the neural network, until the network output data for all training data and the difference between the ideal output data in the range of error of the requirements, to achieve more accurate prediction effect. For example, a three-layer neural network, through the calculation of the difference between the actual value and the predicted value, will have an error e , the loss function is defined as formula (4):

$$L(e) = \frac{1}{2} SSE = \frac{1}{2} \sum_{k=1}^m (y_k - O_k)^2 \quad (4)$$

The error is calculated as formula (5):

$$e_k = y_k - O_k \quad k = 1, 2, \dots, m \quad (5)$$

Where y is the actual output and O is the expected output. The ultimate goal is to constantly modify the current weights and thresholds until the error between the corrected network actual output and the ideal output meets the accuracy requirements of training.

2.2 FLC-IBP MODEL

Degree of membership is the basis of fuzzy math, and its value range is between (0,1). Fuzzy neural network makes use of this feature to make the output states value of neurons at the interval of (0,1), which can be used to represent the degree of membership of fuzzy set, and can be further combined with fuzzy theory. The fuzzy controller is a set of multiple input response functions. For any input, each function has a direct response, and then the response of each function is synthesized by the fuzzy controller to obtain the final output. Therefore, FLC-IBP model combines the advantages of fuzzy logic control and neural network together, which can not only fuzzy process data, but also improve the training speed and achieve the expected accuracy. A good combination is formed

between the two to give full play to their respective advantages to the greatest extent, and the basic combination point is degree of membership. The integration framework for the two is shown in Figure 2:

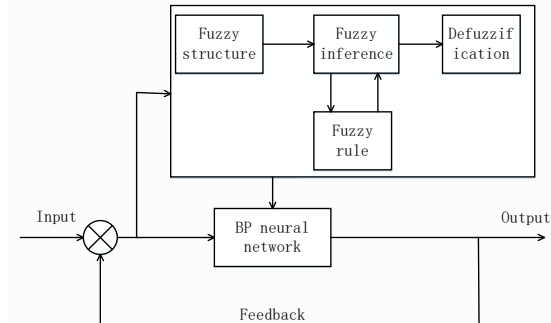


Fig.2 FLC-IBP integration framework

The working principle of FLC-IBP is to learn part of the data after the fuzzy processing, and calculate the error between the actual output and the ideal output, and feed back to the network to constantly adjust the weight and threshold until the satisfactory effect is reached. In this paper, the complementary combination method of discrete structure of fuzzy nervous system is used to predict PM_{2.5} data. Degree of membership function models adopted in this experiment are small lower semi-trapezoid distribution function, large ascending half trapezoid distribution and triangle degree of membership function. Then, according to the principle of maximum degree of membership, select the maximum degree of membership, and finally, the value is set according to the fuzzy classification of the maximum degree of membership.

If the input vector space of the fuzzy neural network is represented by q fuzzy numbers $A^1 \sim A^q$, The value of the degree of membership function corresponding to input vector X is $u_A^1(X) \sim u_A^q(X)$, Fuzzification transforms any certain vector X into the corresponding q degree of membership function values. The output vector space is represented by r fuzzy numbers $B^1 \sim B^r$, The fuzzy inference result generated by the fuzzy inference is the degree of membership function value corresponding to any output vector Y is $u_B^1(Y) \sim u_B^r(Y)$, They represent the degree of membership in different categories of X . Here are the rules:

Rule R^l : If X is $A^{i_1(l)}$ or X is $A^{i_2(l)}$ or... X is $A^{i_p(l)}$
Then Y is $B^l, l=1 \sim r$

Among them, $i_1(l), i_2(l), \dots, i_p(l) \in \{1 \sim q\}$, They are the labels of the input fuzzy numbers represented by rule l , and the number is $p, 1 \leq p \leq q$, For a certain X , the possibility that rule l is true, that is, the degree of membership $u^{l(X)}$ of X to this rule, can be calculated as formula (6):

$$u^l(X) = \max \{u_A^{i_1(l)}, u_A^{i_2(l)}, \dots, u_A^{i_p(l)}\} \quad (6)$$

The fuzzy inference module in the system calculates $u^l(X)$ for any input $X, l=1 \sim r$. Defuzzify according to $u^l(X)$ and $u^l_B(Y)$, the determined vector Y of system output is obtained.

Based on the analysis of the above FLC-IBP model, the basic construction steps and learning algorithm of the model are given.

- (1) Analyze the input and output data and quantity of the model.
- (2) Initialize the connection weight value and threshold value of BP neural network with random value.
- (3) Data preprocessing.
- (4) Establish the FLC-IBP model to predict $PM_{2.5}$ concentration.
- (5) Calculate the output of each neuron in the output layer of the hidden layer according to the determined parameters.
- (6) Parameter correction, calculate the new connection weight and threshold.
- (7) Select the optimal number of hidden layer neuron nodes.
- (8) Test the well-trained FLC-IBP model with experimental data.

2.3 THE EVALUATION INDEX

In order to analyze the validity of the prediction model, three evaluation indexes, namely, mean square error (MSE) as formula (7), root mean square error ($RMSE$) as formula (8) and mean absolute error (MAE) as formula (9), were used in this experiment.[11]

$$MSE = \frac{1}{n} \sum_{i=1}^n (observed_i - predicted_i)^2 \tag{7}$$

$$RMSE = \sqrt{\frac{1}{n} \sum_{i=1}^n (observed_i - predicted_i)^2} \tag{8}$$

$$MAE = \frac{1}{n} \sum_{i=1}^n |observed_i - predicted_i| \tag{9}$$

$observed_i$ is the observed concentration of air pollutants, $predicted_i$ is the predicted concentration of

Table 1 Regression coefficient

Variable	PM2.5	PM10	NO2	Temperature	Pressure	Humidity	Wind	Weather
Coefficient	0.4890	0.3850	0.1089	0.0410	0.0102	-0.0698	-0.0334	0.0042

As shown in the chart, the influential factors with large positive regression coefficient are $PM_{2.5}$, PM_{10} , NO_2 and temperature. Meteorological data are integrated to improve the accuracy of forecasts.

Then the data is preprocessed. Generally, all rows with missing values are discarded and abnormal data is deleted, and the network is then trained to predict data and compare performance.

3.2 STANDARDIZATION OF DATA

Since variables between different dimensions would increase the training time and the network could not converge, in order to speed up the network convergence and improve the accuracy, the data

air pollutants, n is the number of test samples.

3. DATA SOURCES AND PREPROCESSING

3.1 DATA SOURCES AND PROCESSING

At present, Shanghai has a complete monitoring system and comprehensive monitoring points. Therefore, the air pollutant concentration and meteorological conditions hourly data of a certain area in Shanghai on February 9, 2013 and February 25 were selected for the experiment. The specific data set comes from The Urban Computing project of Microsoft.[12]

Firstly, the collected data samples are sorted out and analyzed. Considering too many influencing factors, the network structure will be huge, which will greatly increase the training time and difficulty. Therefore, it is necessary to reduce the dimension of data and reduce unnecessary or minor factors as much as possible. Partial least squares method is used to process the data,[13]with $PM_{2.5}$, PM_{10} , NO_2 , air pressure, wind speed, temperature and weather in the first hour as independent variables and $PM_{2.5}$ concentration in the second hour as dependent variables, MATLAB programming was used to obtain regression coefficient graph for analysis. The results are shown in Figure 3, and the regression coefficient obtained is shown in Table 1.

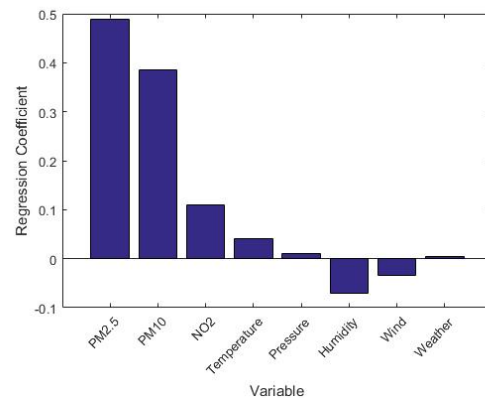


Fig.3 Regression coefficient histogram

should be normalized before the training. The formula used is as formula (10):

$$y = 0.8 * \frac{x - x_{min}}{x_{min_max} + 0.1} \tag{10}$$

Where, x is the value of the original data, x_{min} , x_{max} are the minimum and maximum values of the original sequence, y is the normalized data.

4. EXPERIMENTAL RESULTS AND ANALYSIS

The experimental results are described and analyzed. The FLC-IBP model was used to predict $PM_{2.5}$ concentration in Shanghai to test its prediction performance. When the experimental model chooses

PM_{2.5} data with high correlation as input, the number of input nodes of the network model is 4, and the output is PM_{2.5} concentration. The determination of neurons in the hidden layer is calculated as 9 according to the formula $m=2n+1$ [14]. Another parameter worth attention is the learning rate. In order to achieve the optimal effect of network training, the selection of learning rate is also crucial under the premise of reasonable value, because too large learning rate or too small learning rate will affect the stability of learning and training duration respectively. Generally, for the sake of the relative stability of the system and the comprehensive consideration of learning time, a relatively small learning rate is preferred. After repeated tests, the learning rate of 0.01 was selected in this paper[15]. After the optimal network structure of the current prediction task is determined, the existing model is trained with the training set until it converges. For the influence factors that cannot be quantified, such as weather, it is necessary to quantify these data, i.e., fuzzy processing, in order to reduce the prediction time and improve the prediction accuracy. For some data or parameters that cannot be clearly shown, the corresponding model is established, fuzzy sets and fuzzy rules are used for reasoning, and the degree of membership is obtained by using the fuzzy membership function, so as to realize fuzzy prediction. In order to test the performance of the model, the experiment uses the processed data set for training test, and compares the prediction results of the pre-fuzzy network and the post-fuzzy network. Fig.4 shows the test changes of samples, and Fig.5 and Fig.6 respectively represent the relative error and absolute error between the predicted output and the actual output. The red dotted line represents the FLC-IBP model, the blue solid line represents the BP prediction, and the black dotted line represents the actual value.

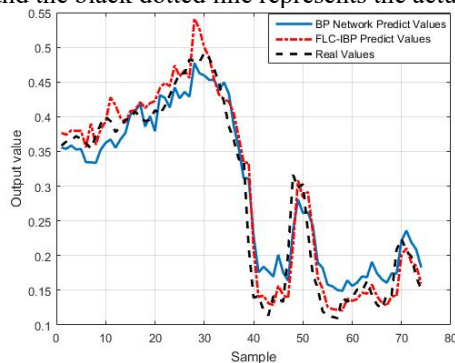


Fig.4 Comparison curve between predicted output and actual output of sample

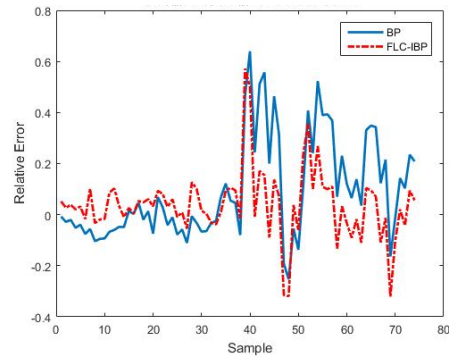


Fig.5 Relative error between predicted output and actual output

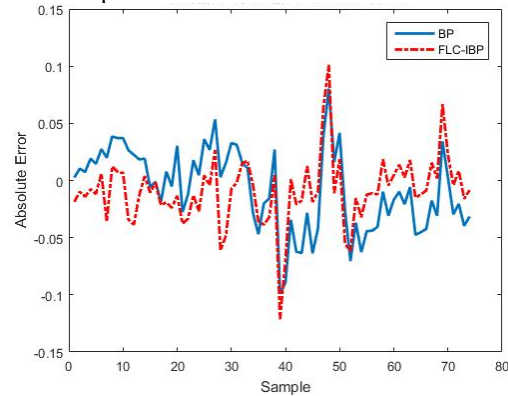


Fig.6 Absolute error between predicted output and actual output

It can be seen from the figure that the fuzzy results are more accurate, with relatively small error, high fitting degree and good performance. The error between the predicted output and the actual output is smaller than that before the fuzzy, which proves the feasibility of the method. Table 2 compares the performance evaluation indexes of the network. Through the analysis of the following tables, it can be seen that FLC-IBP model has better performance and the mean square error (*MSE*), root mean square error (*RMSE*) and mean absolute error (*MAE*) are all lower, which improves the accuracy and shows the effectiveness of the model.

Table 2 Comparison of performance indexes of different models

Network models	MSE	RMSE	MAE
BP	0.0017	0.0417	0.0341
FLC-IBP	0.0011	0.0340	0.0253

5. CONCLUSIONS

In the experiment, fuzzy logic control and BP neural network were used to predict PM_{2.5} concentration, and the following conclusions were obtained:

- (1) Data processed by partial least squares method shows that the regression coefficients of PM_{2.5}, PM₁₀, NO₂, temperature and air pressure are all positive, while the regression coefficients of humidity, wind speed and weather are all negative. The positive regression coefficient of PM_{2.5} is significant.

(2) According to the results of partial least squares analysis, the influencing factors of larger positive regression coefficient are selected as input data, which is conducive to reducing the training time and improving the accuracy of the network.

(3) FLC-IBP model makes up for the deficiency and shortcoming of BP neural network. According to the experimental results, FLC-IBP model has better performance. In addition, combined with meteorological conditions in data processing, fuzzifying the temperature data, and training the network with the processed data. At this time, the network prediction results obtained have smaller error and higher accuracy, which meet the prediction requirements. It is proved that this method is feasible and effective.

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Research on the Differentiated Talent Training Model of International Economics and Trade

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Abstract: High-quality international trade talent is an important force driving my country's foreign trade development. However, the existing talent's training model seriously hinders specialty construction of international economics and trade. Differentiated talent training model will be of great significance to promoting the cultivation of talents in universities and the rapid development of my country's foreign trade.

Keywords: Differentiated talent training model; International economics and trade; Research

1. INTRODUCTION

Since China is involved in the World Trade Organization in 2001, the demand for international trade talents has also increased greatly. The growth in demand for international trade talents has made the numbers of graduates also significantly increased. However, many graduates are unable to work immediately after graduation. As a result, there is a contradiction between supply and demand for international trade talents: on the one hand, employers lack international trade professionals; on the other hand, numerous graduates face unemployment [1-3]. The real reason is that the existing model of talent training in university is inappropriate for necessity of international economic and trade development.

2. CURRENT STATUS OF INTERNATIONAL TRADE TALENT TRAINING MODEL IN UNIVERSITY

2.1 Talent training objective is assimilative

The talent training goals of international trade in various universities are similar, which are unable to be adjusted timely according to differentiated development of international trade. This goal of assimilative talents cannot meet the needs of foreign trade professionals in the foreign trade industry.

2.2 Convergence of talent training programs

The talent training model in many universities does not match with the curriculum, furthermore, which ignores the cultivation of students' practical ability. With the development of economic globalization, new changes have continuously occurred in the field of international trade, such as cross border e-commerce, however, the curriculum has not kept up with changes in the international trade situation.

2.3 Talent training model lacks localness characteristics

The goal of talent training in local universities is to serve the development of the local foreign trade economy. Correspondingly, the model of talent training should also highlight local characteristics. But in reality, professional talent training with local characteristics has not yet been reflected in the talent training program for international trade.

3. CONSTRUCTION OF DIFFERENTIATED TALENT TRAINING MODEL OF INTERNATIONAL TRADE

The differentiated international trade talent training model, namely, guided the differentiated needs of enterprises for international trade talents, universities implement the entire process of differentiated international trade talent training, including developing specific talent training goals, teaching content and curriculum design and evaluation system, under the ground of the university's own running conditions, student source conditions and regional characteristics, etc.

3.1 Establishment the differentiated international trade talent training objectives

At present, society's demand for international trade talents can be roughly divided into four categories, namely, international economic and trade theory research talents, foreign trade practice application talents, foreign economic and trade composite application talents, and international business talents.

The goal of personnel training for theory research talents is to cultivate knowledge of economic and trade theory, familiar with international trade rules, and the ability to innovate in international trade theory; the aim of applied talents for foreign trade is to master the skills of international trade practice and to engage in various industries; the goal of combined application talents is to cultivate a kind of composite, innovative application talent; the aim of training international business talents is to train senior management talents who have the ability of multinational management and can be responsible for the operation of multinational companies.

3.2 Construction of differentiated international trade talent training programs

Firstly, universities should establish differentiated curriculum according to the characteristics of social needs and training objectives. Secondly, universities should strengthen the construction of teaching

materials aiming at the different training requirements of target level talents. Thirdly,

3.3 Establishment of differentiated training methods and management methods

Universities should adopt differentiated teaching methods, teaching methods and assessment methods according to their own characteristics. At the same time, the traditional examination model should be changed, oral exams and the introduction of vocational qualification certificate evaluation standards should be used.

3.4 The differentiated international trade talents should have localness characteristics.

The differentiated international trade talents should serve the local economy in accordance with the level of regional economic development. Universities can provide special lectures on major trading region to let graduates have differentiated international trade abilities.

4. CONCLUSION

To sum up, under the background of rapid development in international trade on earth, strengthening the cultivation of differentiated international trade talents is the most effective means to innovate the professional ability cultivation mode of

international economic and trade talents. In order to achieve this goal, it is of the necessity to develop training method, training program and training objective.

ACKNOLEGEDEMENT

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Analysis on The Problems and Countermeasures of Cloud Finance Application of Dongguan Small and Medium-Sized Enterprises Under the New Crown Pneumonia Epidemic

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Abstract: The new crown pneumonia in December 2019 has had a serious impact on my country's macroeconomic, microeconomic, and social life order. The blow to small and medium-sized enterprises is also serious and immeasurable. Cloud finance, that is the combination of finance and cloud computing, it has the advantages of multi-terminal general use, mobile office and low cost, and it can also effectively improve the work efficiency of accounting personnel. Dongguan small and medium-sized enterprises as the object, this paper analyzes its financial use cloud to cloud financial knowledge is not enough, cloud products function is not perfect, the cloud data security hidden danger, the support of national laws and regulations is not enough problems and put forward the corresponding countermeasures, for enterprises to achieve maximum value to provide some guidance.

Keywords: Cloud Finance; Small And Medium-Sized Enterprises; Problem; Countermeasures

1. THE IMPACT OF THE NEW CROWN PNEUMONIA EPIDEMIC ON DONGGUAN SMES

In order to better understand the impact of the new crown pneumonia epidemic on Dongguan's small and medium-sized enterprises, we conducted surveys on 150 different industries through questionnaires. The survey found that 75% of surveyed enterprise personnel believe that the new crown pneumonia epidemic has the greatest impact on the company's operating income, mainly in the foreign export trade industry, the catering, tourism and cultural industry, some processing and manufacturing industries, and some have no impact on the cost of small and medium-sized enterprises in Dongguan. Mainly small and medium enterprises that produce protective products, because the impact of the epidemic needs to increase more than ever. The details are shown in Figure 1:

2. THE IMPLICATION OF CLOUD FINANCE AND ITS ADVANTAGES FOR SMALL AND MEDIUM-SIZED ENTERPRISES IN DONGGUAN

2.1 The meaning of cloud finance

Cloud finance refers to a cloud accounting platform based on cloud computing through the Internet, using computer terminals or mobile phones on cloud accounting software to perform accounting, accounting management and accounting decision-making processing on economic business vouchers, and related to the country through relevant interfaces. The system is connected to a virtual accounting information system that realizes automatic tax calculation, automatic tax payment, and automatic fee payment.

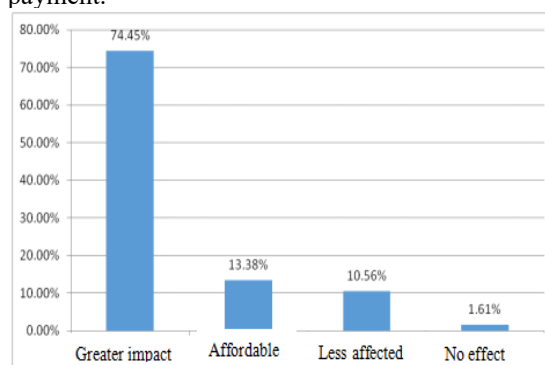


Figure 1: The proportion of the impact of the new crown pneumonia epidemic on SMEs in Dongguan

2.2 The advantages of cloud finance for small and medium-sized enterprises in Dongguan

(1) Help companies reduce costs

There are a large number of small and medium-sized enterprises in Dongguan, and their ability to resist risks is relatively poor. This epidemic has a relatively large impact on these small and medium-sized enterprises, and the use of cloud finance can reduce the cost of enterprises. Because companies can purchase or lease cloud services provided by cloud financial developers according to their actual conditions, at reasonable prices, and do not need to purchase hardware or software, they only need to pay a certain service fee, and they can also enjoy modern information services[1].

(2) Flexible and convenient

Cloud Finance overcomes the limitation of working only in the office. It implements mobile office work on multiple ports such as computers and mobile phones. Accountants can work anywhere at any time, and it supports multiple people to keep accounts at the same time. Especially during the new crown epidemic, cloud services have brought more convenience, flexibility and convenience to enterprises.

(3) Cloud Finance can optimize the internal control management of enterprises

The degree of informatization of small and medium-sized enterprises is relatively low, and internal control lacks comprehensive information such as effective financial information and business information, which leads to problems in internal control management. Cloud finance can enable enterprises to obtain more financial information on the same platform, and integrate financial forecasting, financial planning, financial decision-making, financial accounting and financial analysis together to provide an effective platform for the internal control of small and medium-sized enterprises, so as to optimize their internal control management[2].

3. THE MAIN PROBLEMS EXISTING IN THE APPLICATION OF CLOUD FINANCE IN SMALL AND MEDIUM-SIZED ENTERPRISES IN DONGGUAN

(1) Dongguan's small and medium-sized enterprises have insufficient knowledge of cloud finance

The epidemic has put many small and medium-sized enterprises in Dongguan on the verge of break-even. Many managers have tried their best to reduce costs, believing that cloud finance simply uses computers to replace manual bookkeeping. Many financial personnel also have conservative concepts and believe that the scale of the enterprise .Not too big, economic business also happens frequently, don't make too many improvements, just keep manual accounts. On the other hand, the developers of cloud finance mainly focus on large enterprises, and rarely promote small and medium-sized enterprises. As a result, small and medium-sized enterprises have little understanding of cloud finance related information, making it difficult to accept cloud finance.

(2) The product function of cloud finance is not perfect

The function of cloud financial products is mainly to serve large group enterprises, for small and medium-sized enterprises mainly provide accounting and financial accounting, many functions are not customized for small and medium-sized enterprises, Therefore, managers of small and medium-sized enterprises in Dongguan think that cloud finance does not integrate finance and business well, and they cannot provide enterprises with useful information such as business decision-making and risk assessment.

(3) There are hidden dangers in the security of cloud data

Most small and medium-sized enterprises in Dongguan

are in the development stage. When they use cloud finance for accounting, they will transfer the original information of the enterprise to the cloud terminal through the Internet, and then conduct standardized operation of the cloud platform. After processing, these data will finally be retained in the database of the cloud terminal[3]. Because cloud finance does not have very good protection for financial data, many managers of small and medium-sized enterprises worry that the original data will be leaked, lost or tampered with during the input and processing process, which has also caused the development of cloud finance to be restricted.

(4) Insufficient support from national laws and regulations

At present, my country's laws and regulations on Internet crimes are still in the stage of construction and improvement. There is no comprehensive law to supervise and protect cloud financial products. This results in users unable to fully trust cloud financial products and worry about not being able to protect their legitimate rights and interests. In addition, the country has not formulated a unified policy standard to measure the function of cloud financial products, and the cloud financial products launched by various suppliers cannot realize information sharing, which not only limits the development of cloud financial products, but also limits the freedom of small and medium-sized enterprises to choose cloud financial products according to their actual needs.

4. SUGGESTIONS ON THE APPLICATION OF CLOUD FINANCE IN SMALL AND MEDIUM-SIZED ENTERPRISES IN DONGGUAN

(1) Improve corporate managers' awareness of cloud finance

In the era of information explosion, the scale of enterprise capital will limit its degree of informatization, and the decisions of managers are often inseparable from information. In order to solve this information asymmetry situation, small and medium-sized enterprises have to pay a great price. The use of cloud finance can enable it to have a modern accounting system and reduce the enterprise's investment in informatization. Managers should be willing to change the traditional work philosophy and mode, understand cloud finance objectively, and be willing to accept cloud finance[4]. Keep up with the trend of the times, guide the change of the ideological structure of accounting personnel, and drive the learning passion of employees. The establishment of a sound corporate financial system has a significant impact on its future long-term development, and managers should not blindly focus on short-term benefits.

(2) Improve cloud financial product performance

The supplier of cloud finance should start from the customer demand of small and medium-sized

enterprises in Dongguan. To develop and provide software such as information services according to the industry and different life cycle stages of SMEs, continuously innovate and develop to realize the diversified and personalized development of cloud computing services, actively and effectively meet the needs of SMEs and improve their information management level, so as to provide more efficient and scientific information tools for their business management, actively improve the enterprise's financial management level and operating efficiency level. At the same time, product functions must be adjusted and developed in a timely manner in accordance with changes in national policies. The ultimate goal of cloud finance is to apply to enterprises to help them build informatization. Developers need to use actual economic business as an example to analyze and explain typical cases of small and medium-sized enterprises, and provide product problems pointed out by users. Make timely modifications, obtain real user feedback, further improve the operability of the product, and achieve the goal of mutual benefit and win-win results.

(3) Ensure the security of cloud financial data

With the development of the Internet, hackers have emerged one after another, and cloud finance may expose, lose or tamper with data in the process of input and processing. Therefore, developers of cloud finance should not only possess exquisite information technology, but also have good professional ethics. Not only must not betray the business secrets of the enterprise for personal gain, but also employ excellent information technology personnel to maintain the security of the cloud platform, and prevent SME users from receiving malicious attacks from hackers or data loss. The developer should test the safety performance of the product to ensure the safety and integrity of the data in the process of transmission, use and storage. For the encryption, access rights and firewall in the software, professional and technical personnel should be asked to conduct strict inspections.

(4) Establish and improve relevant laws and systems

First, improve the relevant standards of cloud financial products. The country should conduct standardized management of cloud financial products, ensure that information can be shared between different cloud financial processing systems, enhancing the comparability and transferability of information; second, improve the laws related to Internet crimes. Use the law to effectively protect the legal rights of users, improve the network supervision mechanism, create a good and clean network environment for the development of cloud finance, and promote the healthy development of corporate accounting information; finally, the state should introduce encouraging policies for cloud finance. The state should issue corresponding encouragement policies for high-tech companies such as cloud finance developers to reduce the developer's burden of scientific research funds, or establish cloud finance research and development bases through financial subsidies to promote the development and application of cloud finance.

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Application Research of Teaching Reform Based on "Blue Mo Cloud Class + SPOC" -Take "Cost Accounting" as an example

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Abstract: With the advent of the Internet information age, traditional teaching methods are out of touch with the times. In order to enrich the classroom and improve learning autonomy, the "Blue Mo Cloud Class + SPOC" teaching model came into being. Lanmo Cloud Class is an intelligent teaching cloud platform under the background of big data. It uses the cloud class to push a variety of teaching resources and give experience value before class. Brainstorming, testing, classroom performance and group tasks are performed during the class. The objective experience ranking in the cloud class provides a reliable basis for the ranking in peacetime. Use cloud classes to monitor and supervise learning in real time, and analyze learning to improve teaching effectiveness.

Keywords: Lan Moyun Class; SPOC Teaching Reform; Cost Accounting

1. BOTTENECK OF TRADITIONAL TEACHING MODE

The traditional teaching method is the mainstream teaching method formed in China for thousands of years. The traditional teaching method should be viewed dialectically. This teaching method has laid a solid foundation for students to learn theoretical knowledge[1]. However, teachers have been engaged in teaching for a long time. There is no enterprise practical experience, and cost accounting is divorced from theory and practice in the teaching process. On the other hand, because teachers have always adopted a "full house" teaching method, students passively accept knowledge, have a heavy classroom atmosphere, and lack the spirit of active learning, Making teaching reform imminent.

The knowledge structure of cost accounting is basically the same as the knowledge structure of a dozen or even decades ago, and knowledge theory has not been reformed. Some advanced cost accounting methods are rarely quoted in books, or teachers even ignore these methods when teaching. The advanced nature and practicality of teachers, teachers emphasized cost forecasting, cost decision-making, cost accounting and so on. In order to improve

students' initiative and enthusiasm for learning and change the boring nature of traditional classrooms, with the advent of the information age, there have been epoch-making auxiliary teaching software such as cloud classes.

2. THOUGHTS ON THE RISE OF "BLUE MO CLOUD CLASS+SPOC"

Professor Armand Fox of the University of California, Burke, first proposed and applied the SPOC (Small Private Online Course) mode[2]. In 2014, Zhejiang University and Tsinghua University successively implemented the mixed teaching mode of SPOC in China and achieved good results. Later, they have been promoted and applied throughout the country. In order to improve the learning atmosphere of the classroom and break the traditional "learning-receiving" teaching mode, some smart teaching software assistants have emerged as the times require due to the popularity of smart phones. Lanmo Cloud Class is a free intelligent teaching cloud platform developed by Beijing Lanmo Technology Co., Ltd. which is an online and offline mixed interactive teaching feedback. Due to the tediousness of the traditional classroom and the single teaching method, the "Blue Mo Cloud Class + SPOC" teaching model breaks the tradition and applies advanced information technology such as Internet information, artificial intelligence, and big data to the classroom.

The "Blue Mo Cloud Class + SPOC" teaching mode has the characteristics of epochal, interactive, challenging and innovative; epochal: the emergence of "Internet + mobile phone" information technology means, "mobile phone occupation classroom" into "classroom Occupy the mobile phone "; Interaction: Blue Mo Cloud Class can interact with teachers anytime, anywhere to solve students' doubts in a timely manner. Students use fragmented time to learn more systematic and comprehensive knowledge; Challenging: Blue Mo Cloud Class is a For the new intelligent teaching platform, teachers and students must first be familiar with the application of the platform, as well as master the settings and applications of the various modules in the platform. Innovative: Use the blue ink cloud class intelligent teaching cloud platform to perform

diverse sign-in, set up brainstorming, Interesting activities such as tests, question-and-answer discussions, and poll questionnaires; can also objectively rank students' ordinary performance, which is more objective, fairer, and more open than purely subjective assessment by teachers;

3. "BLUE MO CLOUD CLASS++ SPOC" CLASSROOM TEACHING DESIGN

3.1 Pushing diversified teaching resources before class

Teachers will screen learning resources before class and upload various learning resources such as courseware PPT, Chinese University MOOC video, micro-lessons, cases, etc[3]. in the Lanmo cloud class course resource module. The diversification of learning resources guides students to learn independently, breaks the limitations of time and space, improves the knowledge system, and lays the foundation for subsequent knowledge learning. For example, by watching the famous teachers in the Chinese university Mu class explain the two methods of cost reduction under the step-by-step method, and then the teacher makes a graphic and textual method to quickly master the cost reduction mind map and other means to break through the teaching difficulties. According to the requirements of the teaching objectives of cost accounting for applied undergraduates, organize classroom design, optimize the knowledge structure, and identify teaching priorities and difficulties. In order to reflect the fairness of the usual performance, the teachers set the weight of the usual division in the blue-mo cloud class. Discussion answer questions accounted for 10%, brainstorming accounted for 15%, voting questionnaires accounted for 5%, homework / group tasks accounted for 10%, class performance accounted for 15%, and teachers liked 10%. In the end, the cloud class platform calculates the members' experience values and ranks them according to the weights. Ranking according to the experience value of the cloud class is more reasonable and fair than the subjective ranking of teachers.

3.2 Fun Class Activities in Cloud Class

3.2.1 Brainstorming

Brainstorming diverts students' thinking and develops the ability to think independently. Teachers first set up brainstorming questions. Brainstorming can stimulate students' creative thinking and generate a series of associative reflections. Under the premise of setting experience value rankings, students have a sense of competition and continue to operate thinking machines to strive for uniqueness. Insights and novel ideas, in order to obtain teachers' likes and corresponding experience values, and smart tags can analyze and summarize the degree of

students' mastery of a certain knowledge point. Finally, the answers of all the students in the class can be displayed in front of everyone through a computer screen. The students can see the answers of other students, the teacher and the students make comments together, and turn the classroom under the baton. When you like, a personalized avatar of the student will appear on the screen, as well as the corresponding experience value and angel wings image of encouragement. The teacher's appreciation of the students will be reflected on the screen, which will make the students happy, which stimulates the "cost accounting" Learning interest.

3.2.2 Test

The cloud class is used to monitor the students' knowledge of the knowledge in real time. The teacher will set the corresponding test questions in the test module of the cloud class in advance. After each knowledge is explained, the assessment will be performed immediately and the answer will be submitted. Analyze learning through answers. The test will rank according to the correct rate of the answer and the time of answering the question. It can automatically generate a histogram and automatically calculate the average score and average time of the percentage system. 40 seconds, with a maximum of 100 minutes and a time of 1 minute and 39 seconds. Students can also see the correct answers to the questions they have done, understand the knowledge points they have not mastered, and break through. They can also see the ranking of each test, so as to motivate and urge them to take the initiative to study seriously. The small test module opens the distance of the normal time division, thus providing objective data basis for the normal time division.

3.2.3 Assignment / Group Task

In order to achieve the requirements of the application-oriented undergraduate training goal, a simulation training of "Cost Accounting" was conducted at the end of the semester by using the intelligent cloud teaching platform of the blue ink cloud class. The simulation training is divided into groups, and each group leader gives a score to the members of the group, and then uploads the results of the simulation training to the cloud class group task activities. The teacher sets the student mutual assessment function in advance, and each group uploads the simulation training. After the results, each member can comment on the training results and ratings of other members. Group task activities can stimulate students' thinking, strengthen students' sense of responsibility for their own learning, establish a multi-directional, multi-angle, multi-level communication mode between teachers and

students, and students, and shorten the distance between each other.

4. "BLUE MO CLOUD CLASS + SPOC" FLIP TEACHING EFFECT AND REFLECTION

4.1 "Blue Mo Cloud Class + SPOC" flipping teaching effect analysis

The Lanmo cloud class intelligent teaching cloud platform can monitor the learning situation in real time, the teacher analyzes the learning situation, and urges and guides students to learn independently. The Lanmo Cloud class also established a real-time communication platform, where teachers and students can initiate interactive chat to answer difficult questions in real time. According to the background data of Lanmo Cloud Class, 39 teaching resources were released, including testing, brainstorming, voting questionnaires, group tasks, etc. 6 times, teaching messages were issued 42 times, and one based on "Blue Moyun" was organized. Classes + action-oriented learning + simulation training "flipping the classroom" teaching model, and based on academic analysis to remind students that there is a risk of hanging.

According to the analysis of cloud class experience value, the passing rate is 10%, the medium proportion is 17.5%, the good proportion is 12.5%, and the excellent proportion is 60%. According to the poll questionnaire survey results, 68% are very much in favor of using the blue ink cloud class More vivid, more interesting, more active learning atmosphere, 32% think the effect is average, indicating that the teaching model of "cost accounting" based on "blue ink cloud class + SPOC" is accepted by most students; the teaching methods are extremely diverse Has improved students' interest in learning.

4.2 "Blue Mo Cloud Class + SPOC" Reflections on Inverted Classroom Teaching

There is a certain objective basis for ranking according to the ranking of experience values. Usually, if you simply rank based on experience values, students will be opportunistic in obtaining experience values, such as watching video courseware, non-video courseware, In the course of micro-lectures, PPT, etc., we cannot determine

whether we have really studied carefully, but only to obtain a certain amount of experience. Lanmo cloud class is just an intelligent tool to assist teaching. The reasonable use of cloud class in teacher's classroom teaching will improve the enthusiasm and autonomy of students, and also to a certain degree of more refined evaluation of academic situation.

Teachers' ability to control the classroom. To use the blue ink cloud class, they must first download the APP on the mobile phone, and use the mobile phone for classroom interactive teaching in the classroom. The teacher must control the students in the classroom and can only use the mobile phone for classroom-related knowledge. Learning and interaction, do not take the opportunity to do things not related to the classroom. When teachers use various modern educational technologies, they cannot make the originally interesting and innovative teaching interactions into a technical process.

The push of resources before the cloud class has greatly increased the workload of teachers, but the use of the cloud class has made students the masters of learning. Compared with the traditional teaching model in the past, the use of cloud class teaching tools pays more attention to process evaluation, which promotes and motivates students to concentrate on listening to the lessons and improve learning efficiency, thereby turning passive learning into active learning.

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Brand Construction and Management of Male Basketball Team of College Students in China

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Abstract: With the development of economy and the change of society, basketball game, originated from American colleges and universities, has been gradually introduced to Chinese college campus, and its influence has been constantly improved. Moreover, basketball game is very popular among college students, which has laid a foundation for the emergence of a group of excellent school basketball teams. Nowadays, campus basketball team has become an important factor boosting the development of professional basketball. In order to survive and develop well in the fierce market competition, brand construction and management is undoubtedly the most powerful way of competition. College men basketball team is committed to the cultivation of players' skills and tactics, forming a dynamic campus cultural activities, which is conducive to attracting the sponsorship of enterprises, institutions or social organizations, and driving the development of the relevant sports market. Meanwhile, the brand building of the campus basketball team is also conducive to improving the reputation and popularity of the school, and to a certain extent, it can also attract a group of excellent students. Therefore, it is obviously important to conduct a study on the brand building management of campus basketball teams. Combining the theory with practice, this paper analyzes the brand building management of male basketball team of college students from three aspects, objectives setting, comprehensive strength and operation mode, to demonstrate the significance of brand building to the development of college and university basketball team. **Keywords:** Brand Construction and Management; Male Basketball Team of College Students; Connotation; Methods

1. INTRODUCTION

With the rapid development of higher education, colleges and universities are increasingly realized that varsity brand construction plays an significant role on their own development. They are committed to explore ways to improve their image and popularity, in order to raise their reputation and competitiveness. And varsity gradually attracts their attention. Creating their own unique brand of varsity becomes the important way to display their own school-running level. Therefore, it is of great practical significance to analyze and study the approaches and significance of

brand building management of sports teams in colleges and universities from different perspectives, and it also provides some references for the long-term sustainable development of college and university education.

2. THE CONNOTATION OF BRAND CONSTRUCTION AND MANAGEMENT OF MALE BASKETBALL TEAM

2.1 The Connotation of Brand

Philip Kotler believes that when customers choose services or commodities, an important defining criterion is that the services or commodities they choose are clearly different from other services and commodities, that is, the brand[1]. The brand is, Huanjin Yang believes, that different goods represent different brands and have their own trademarks[2]. We can see that both scholars believe that brand is a kind of logo. Some scholars also believe that brand provides a huge space of asset appreciation for the merger and acquisition of enterprises, and plays an important guarantee role in the financing process of enterprises. It can be said that brand is a kind of intangible asset. Leslie De Chernatony believes that brand is a kind of relationship which shows that an enterprise keeps the internal and external relationship balanced and coordinated through the efforts of its members, such as the balance of the relationship between internal members and the balance of the relationship between the internal members and external consumers[3]. In fact, more scholars believe that brand is a kind of competitive power, which depends on the quality of products or the quality of services. This paper argues that brand is essentially a kind of individual identity, which is a very important asset of an enterprise and a reflection of its comprehensive strength in competition.

2.2 The Connotation of Brand Construction and Management

For enterprises, it may not be difficult to build a brand, but the difficult thing is to carry out comprehensive and effective management of brand operation, so as to ensure its vigorous development. First of all, the leader should have an overall plan for the brand and define the development goals of the brand. Second, the strategic management of the brand should include not only the management of the implementation process, but also the assessment and incentive of the implementation. Generally speaking, the main content

of brand management includes the following things. First, create the direction and goal for brand management and make a long-term plan for brand equity. Second, establish and improve the brand management organization. Third, make brand management decisions. And then set a position for the brand correctly. What's more, the brand should be designed well and shows innovation. Last but not the least, promote, extend and monitor the brand. Generally speaking, brand building management can stimulate people's awareness of protection and play a great role in promoting and motivating cultural publicity. Therefore, as a cultural activity, the construction and development of campus basketball must focus on brand building and management[4].

In this paper, the brand building and management of male basketball team of college students is defined as a series of management activities carried out by ordinary colleges and universities on the basis of basketball team, according to their own characteristics and reality, using various methods and means comprehensively, mobilizing all the positive factors that can be mobilized, so as to achieve the purpose of increasing the comprehensive strength of the school[5].

3. THE BRAND CONSTRUCTION AND MANAGEMENT OF MALE BASKETBALL TEAM OF COLLEGE STUDENTS

3.1 Reasonable Goal Setting for Male Basketball Team

In order to promote the sustainable development of basketball team, different colleges and universities should make a clear orientation on the cultivation of basketball players according to their actual situation and goals under the premise of full demonstration. At the same time, the successful experience of colleges and universities of the same level can be used for reference for target positioning. For example, as one of the world famous universities, Tsinghua University has always adhered to the concept of "keeping physical and intellectual education balanced and pursuing excellence" since its founding in 1997. It has set the goal of building a high-level sports team and promoting the all-round development of students at the very beginning, guiding the way forward for the diving team. The objectives of basketball team in Taiyuan University of Technology are mainly in three aspects: First, cultivate the reserved players for professional basketball. Second, participate in the competition to win honor for the school, and build a competitive sports brand. Third, enrich the campus sports cultural life[6]. Huaqiao University attached great importance to the construction of male basketball team at the very beginning of its establishment. The team's goals are precisely defined in three aspects: First, participate in the College basketball League and compete for the honor of the university. Second, provide excellent and qualified basketball players. Third, make male basketball team an influential campus sports culture to improve the physical quality of teachers and students, and to enrich their study and life. Huaqiao University

has created a unique basketball team brand after many years of efforts. Tianjin University of Finance and Economics is a university approved by the Ministry of Education to try out a high-level sports team. It sets the training of athletes with high competitive level and high cultural quality as the main goal of the basketball team, and summarizes a set of successful experience. The female basketball team of Tianjin University of Finance and Economics is in the leading position among the universities in China. Conduct publicity through the competition, so that students from all over the country can have a clear understanding of the campus style, school culture, scale, as well as the conditions of the school, so that the image of the school can be rapidly promoted and its popularity can also be rapidly improved. The target positioning of these universities provides a clear idea for the brand construction of universities. Other universities can take a suitable development path by combining the successful experience of other universities according to their own reality[7].

3.2 Improving Comprehensive Strength of Male Basketball Team

In terms of funds, universities should ensure that a certain amount of funds is provided for basketball teams each year to meet the needs of sports teams in training and competitions. At the same time they can also make some reward mechanism. For example, when the team wins the game for school, give material reward in a timely manner. And they should also expand the capital source channels. In order to have sufficient funds to support sustainable development of school sports teams, they can enlarge their own influence as far as possible to attract sponsorship of large enterprises and institutions or social organizations, and form a long-term cooperation with them. In terms of hardware facilities, in order to ensure the normal development of basketball team, they must be equipped with relatively complete training facilities. The survey shows that Huaqiao University's training facilities are relatively complete and sports equipment is constantly updated. Meanwhile, some training rehabilitation facilities or instruments should be equipped, and advanced medical equipment and sports rehabilitation instruments should be introduced so as to enrich the professional technical level of the basketball team. Peking University actively maintains a long-term cooperation with its affiliated hospital, so that once the athletes have sports injuries, they can get comprehensive and immediate treatment, which provides a very convenient condition for the training of its track-and-field team. It not only satisfies the daily training of the team members, but also provides a strong guarantee for improving the athletic ability and level of the team members. What's more, it also provides a strong material guarantee for the training and recovery of the high-level basketball team, and promotes the great improvement of the basketball team's athletic level. At the same time, universities can

also try to set up a scientific research team to provide more scientific training for the school basketball team, which will lay a foundation for improving the training efficiency of their basketball team. Continue to innovate skills and tactics and form a unique style to create a very influential basketball team brand. The basketball team of Peking University has set up a sports monitoring laboratory to make the daily training of student athletes and the future selection of student athletes more scientific. With such material security, the technical and tactical level of school basketball team will be higher and higher, and the school basketball team's exposure to the media will also be higher and higher, which invisibly can help basketball team get corporate sponsorship to reduce the burden of school and obtain a strong guarantee for itself development[8]. In addition, universities can hire full-time coaches with excellent coaching ability according to the reality. While hiring them, universities can make requirements on age, cultural level, and professional title of coaches. In order to promote the quality of coaches, universities can regularly have them trained or learned outside, and also can hire well-known experts to conduct lectures. And coaches are required to actively participate in training and academic exchanges so that they can constantly promote their ability to coach and effectively improve the training level of team members. Particularly, more attention should be paid to the role of external coaches on student competitions, because they have richer on-the-spot experience and can effectively help students improve their tactical level, thus achieving excellent results and facilitating the rapid growth of students' basketball skills[9].

3.3 Optimizing the Operation Mode of School Male Basketball Team

The brand construction and management of sports teams in universities should be combined with the characteristics and reality of school training, and formulate clear management methods and measures, and make improvement and adjustment according to the actual situation in the implementation. In order to ensure the normal operation and standardization of the school basketball team, a special management organization needs setting up and management responsibilities of each department have to be clarified, and the labor should be reasonably divided and the cooperation also needs strengthening, so as to make the training of the players more systematic and lay a solid foundation for the sports team to create excellent results. For example, the male basketball team of Huaqiao University adopts the operation mode of "combination of competition and teaching", which effectively solves many problems such as separation of training and learning, shortage of reserve talents and shortage of coaches. In the training of students, independently make a cultivation plan and a detailed training plan and also make full use of the morning to study and train appropriately in the afternoon, so as to

strive for the opportunity of competition for the students, and constantly accumulate experience and improve the level. And reward the excellent students, and of course, make reasonable punishment for the students who violate the law and discipline, so as to maintain the effective operation of the sports team. What's more, encourage students to take part in competitions to obtain credits and employ excellent professors to teach them. In this way, it can not only help students alleviate the contradiction between learning and training, but also help them improve their training level. For example, the diving team members and ordinary college students of Tsinghua University learn cultural knowledge together and accept unified class management. Most of the students use their spare time for diving professional training. In order to solve the problems those diving team members have during the cultural learning, the qualified students are found specially to help them learn culture courses. Such a mode really solves the worries of the contradiction between learning and training of the team members, and makes their college life colorful and happy. In the process of enrollment, the relevant rules and regulation should be strictly abide by, and every link ought to be kept open and transparent, so as to ensure the quality of students. It can be said that the competition between universities is the competition of high-quality students. Through the construction of school basketball team, it can enhance the social popularity of the school, attract a large number of high-quality students, and then cultivate high-level qualified basketball players, so as to occupy a place in the fierce competition of universities. Only in this way can school leaders' attention be attracted, and to a certain extent can the basketball team obtain the support of school leaders in policy, financial and material resources[10].

4. CONCLUSION

Various universities carry out campus sports activities in various forms, and also have different goals. Create a school basketball team with own characteristics, improve the management mode and management system of the basketball team, improve the quality of the competition, enrich the cultural connotation of the basketball team, and mobilize the enthusiasm of all parties by learning from the successful experience of other schools in brand construction and development, and combining with own characteristics. At the same time, further strengthen and improve the investment in funds, facilities and training of coaches. Regular assessment and evaluation need to be carried out on coaches, and importance should be attached to the selection of coaches when conditions permit to reserve as many excellent coaches as possible. It is necessary to correctly guide the direction of brand development, actively improve own weaknesses, and strive to let the brand construction promote the development of the school basketball team towards the direction of diversified funds, professional competition and

efficient training according to the school's own situation. Through the exploration of the target location, comprehensive strength and operation mode, the brand development of the school basketball team is hoped to be achieved. In terms of target orientation, it mainly focuses on the aspects of training of reserved talents, enriching campus cultural life and improving the popularity of the school. In terms of comprehensive strength, it is mainly studied from the aspects of broadening the source of funds, improving school facilities, strengthening the training of team members and optimizing the structure of coaches. In the operation mode, it is mainly to avoid blind obedience, and to create a unique brand model combined with the school's own characteristics.

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Developing Critical Thinking in the College English Classroom: A Lesson Plan

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Abstract: The study is to share the perception of the theoretical and practical ideas of critical thinking by applying it to College English classroom. First, equipped with a large amount of existing research concerning about critical thinking, the author defines critical thinking, presents the framework for critical thinking skills and the necessity to integrate and develop critical thinking in College English Classroom. Then the author takes a 45-minute lesson of 'Spend or save---the student's dilemma', the reading part in Unit 5 of 'New Horizon College English' Book II, as an example to show the detailed practical activities for integrating critical thinking into the classroom.

Keywords: Critical thinking; College English language teaching learning; New Horizon College English; Lesson plan

1. INTRODUCTION

Critical thinking is never a new concept which has been involved in the focus of our educational reform these years. A large number of scholars, experts and teachers have been researching on the subject, including the current situation of critical thinking, training mode, curriculum setting, teaching mode and strategy, test for critical thinking, textbook compilation on critical thinking and teachers' critical thinking, etc.. There is no doubt that the majority of teachers have learned about the term. Equipped with a large amount of existing research concerning about critical thinking, the author aims to share her perception of the theoretical and practical ideas of critical thinking by applying it to College English classroom. She comments with the definition of critical thinking by presenting the history of its development, illustrates the necessity to integrate and develop critical thinking in College English class, and share practical activities by a lesson plan.

1. DEFINITION OF CRITICAL THINKING

What is critical thinking? Type the term in Google or Baidu, there is no shortage of ideas to identify. John Hughes describes 'Critical Thinking' as a 'growing picture' which refers to the fact that 'Critical Thinking' has become somewhat of a buzzword in the world of education, especially in language teaching in recent years [1]. In order to better take in its connotation, the author tries to sort out the development process of critical thinking systematically. From ancient Greece to the Renaissance, to the enlightenment, to modern science, critical thinking has experienced a long

history. It originates in Socrates' thought and his discussion method—Socratic questioning. Socrates, by constantly asking questions and giving counterexamples, led to a deeper level of thinking, exposed the contradictions and defects of reasoning, and emphasized the further analysis of concepts, definitions and problems. Critical thinking is about to find out the truth, and how much the truth is [2].

John Dewey's [3] reflective thinking emphasizes continuous and detailed rational exploration before making judgement about a certain point, hypothesis, argument or what has happened, which is the beginning of the concept of critical thinking in the modern sense. Although Popper's critical rationalism divides the growth process of scientific knowledge into four stages from the perspective of philosophy of science, that is, problems - tentative Solutions - reflection, questioning, and elimination of mistakes - new problems, it inspired the later critical thinking movement in the United States in daily life, in which critical thinking attaches importance to ratiom, reflection, and questioning, too [4]. Concept, judgment and reasoning are the three basic elements of formal logic, which never allows contradiction. However, people living in the United States in the 1950s and 1960s paid more attention to the argument in real life, which gave rise to spread of Informal Logic movement in American university campuses which attempted to cultivate critical thinking through textbooks.

In order to reach a feasible consensus on the meaning of "critical thinking", 46 experts from different fields, led by Facione, formed a research group for the project 'Dephimenthod'. They published 'Dephi' report in 1990, pointing out that critical thinking is purposeful and judged by self-regulatory. Facione points out good critical thinking consists of a skill dimension and a dispositional dimension [5]. The cognitive skills refer to interpretation, analysis, evaluation, inference, explanation and self-regulation. The dispositional dimension of critical thinking includes inquisitiveness, truth-seeking, open-mindedness, analyticity, systematically, self-confidence and maturity. This model lays a theoretical foundation for the exploration of critical thinking measurement tools. Here is a more concise and often-cited definition of critical thinking put forward by Ennis: 'Critical thinking is reasonable, reflective thinking that is focused on deciding what to believe or do [6]. In a word, critical thinking is dynamic, developing and cultivable, which in the

information age, at its core, is to find out whether something is true, partly true or not true at all, through a reasonable, reflective and open-minded way of thinking. Then we need a variety of reflective thinking skills and abilities in order to think critically.

3. FRAMEWORK FOR CRITICAL THINKING SKILLS

The most widely used framework for thinking skills is Bloom's taxonomy of thinking skill which has been refined and adapted over the years by a committee of educators with the purpose of providing teachers with a set of skills to help their learners to develop their learners' thinking skills from lower-order to higher-order and finally enable them learn more effectively [6]. The lower-order thinking skills embrace remembering, understanding and applying while the higher-order covers analyzing, evaluating and creating. Remembering: learners are required to retrieve, recall, or recognize from a recollection. When learners are successful to give a definition, a fact, an example, or even a restoration of something, remembering happens. Teachers might need to ask questions like 'Can you tell me what happened after that? Can you describe the scene? Can you list the words relating to the topic?'

Understanding: compared to native language, it must take longer time for foreign language learners to finish the process——building meaning from understanding. Teachers can facilitate their learners by applying the verbs such as explain, illustrate, sketch and so on.

Applying refers to put the new information got in the text into practice. In the classroom, students are asked to finish banked cloze after they have learnt a text or listened to something, which is the typical example of training applying skill.

Analyzing is the first stage of 'higher-order' critical thinking skill, students have to return to the very beginning of the text to check how the author presents the statement or opinion, how the present does his utmost to convince readers with his statement. Teachers usually instruct the students to decompose information into fragments and sort out the relationship between fragments to get the structure of text or construct the arguments.

Evaluating is the stage at which students have to jump out of the author's point of view or argument, to assess the validity and correlation of the information appearing in the text, which has higher requirements for students' thinking. Teachers can ask students how much fact supported by evidence is involved in the text and what are the author's opinions.

Creative stage requires students to integrate what they learnt and create something of their own. For example, they can present their own project by writing or speaking with the structure of comparison/contrast.

These skills are commonly displayed as a pyramid, which provides teachers with a helpful scaffold able to take their students from one step to the next, then develop students' critical thinking. But the truth is complicated when it comes to practice.

ACADEMIC PUBLISHING HOUSE

4. NECESSITY TO INTERGRATE AND DEVELOP CRITICAL THINKING IN COLLEGE ENGLISH CLASSROOM

After illustrating the definition of critical thinking and the framework of skills, the author is about to address the reasons why critical thinking should be integrated and developed in College English classroom. In order to engage students in authentic communication, it is inescapable for teachers to assign some communicative tasks in modern classroom. As soon as the students set out to accomplish tasks with target language, they are required to understand, investigate, apply, judge, explain and so on, when critical thinking has permeated every link. Therefore, it is inevitable to apply critical thinking skills to effective use of language. Besides, nowadays, the training of critical thinking has become an integral part of the western modern education system, and many universities in the United States have set up relevant courses. On July 29th 2010, Ministry of Education issued 'Reform and Development Plan Outline of National Long-term Education (2010-2020)', which has made more comprehensive new requirement to the high education and emphasizes the goal of 'combining learning with thinking'. College English belongs to Liberal Arts which is an important part of college education in China, and cultivating students 'critical thinking is its chief aim. 'Teaching Guidance for College English' has incorporated academic English into the curriculum, which also highlights the importance of cultivating critical thinking ability in the "improvement and development" stage of College English teaching [7]. Apart from that, 'College English Curriculum Requirements' makes it clear that College English course has both instrumental and humanistic features. Its goal is not only to cultivate students to master listening, speaking, reading, writing and translation skills, but also to cultivate cross-cultural people, that is, to reflect on the relationship between different groups of people. This is not only a sense of experiencing others, but also an ability to take action based on the analysis of this experience, resulting in a deep understanding of oneself and others [8]. In the long run, the "21st century skills" including creative thinking, flexibility, communication, collaboration, judgment and digital literacy are inseparable from critical thinking. Furthermore, the skills are most valued by employers and higher education organizations.

5. IMPLEMENTING CRITICAL THINKING IN COLLEGE ENGLISH—— A LESSON PLAN

College English teaching includes not only learning about the language, but also solving problems with English language, for any language cannot be taught without content, hence, critical thinking can be viewed in College English classroom from two aspects, thinking about the language itself and thinking through the language. Bloom's taxonomy of thinking skills can be used to explore English language itself at levels of

vocabulary, sentence-level grammar and discourse. On the other hand, when students are attempting to grasp the linguistic knowledge, they have been exposed to the context set by the language which is in essence the form of content. They have to think about, to analyze, evaluate, and adapt to the context through the language, or speak/write out something with the language, which embodies critical thinking skills evidently. Of course, Students will be inspired and involved by topics that are closely related to their own interests and lives. The author takes a 45-minute lesson of ‘Spend or save---the student’s dilemma’, the reading part in Unit 5 of ‘New Horizon College English’ Book II, as an example to show the detailed practical activities for integrating critical thinking into the classroom.

Objective 1: critical thinking aim: to develop the skill of identifying implied meaning or assumption; language aim: to understand denotation and connotation;

Objective 2: critical thinking aim: to analyze the structure of the text; language aim: to apply useful comparison and contrast words to structuring a text;

Objective 3: critical thinking aim: to express your point of view on a certain topic according to your reading; language aim: to practice useful expressions for discussions.

Model: according to Bloom’s taxonomy, critical thinking must rely on reliable knowledge about a particular topic which indicates the essential role of understanding content. Then, students are required to get the author’s argument and make evaluation, it is necessary to engage with text. Finally, when students get the instruction to make summary and reflection, it comes to the stage of externalizing from text. In conclusion, the critical reading process covers three stages, understanding text, engaging with text, externalizing from text [6].

Procedure:

Activity 1 for Objective 1- reading between lines

In order to fully understand the text, readers should take in connotation which contains the emotional implications and associations that a word may carry, apart from the literal meaning of a word, that is, denotation. Then it makes it possible to ‘read’ the author’s arguments or points of view.

original	manage	curious	expensive	slim	employees
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Read the following sentences and make the sentences positive by choosing a proper word in the box to take the place of the underlined word which displays a negative meaning.

- 1)Internet influencers online always look so thin.
- 2)The cell phone is overpriced.
- 3)She really knows how to meddle.
- 4)Sandra told me how nosy she can be.
- 5)The boss and his cronies have controlled the city for years.
- 6)You have Emma on your team, who has lots of crazy ideas.

(Answer: 1) slim 2) expensive 3) manage 4) curious 5) employees 6) original)

Activity 2 for Objective 2 -finding the expression

On the surface, the students are looking for the functional words and expressions, the truth is that the students are relating meanings to other texts and their own prior knowledge and constructing their own new meanings by analyzing the structure of the text.

1. Match the functional heading (1-6) to the expressions (a-f).

- 1) introducing a thesis statement
 - 2) giving supporting information
 - 3) presenting more information or evidence
 - 4) comparing points or subjects
 - 5) contrasting points or subjects
 - 6) concluding
- a) One argument for this is ...
 - b) In summary...
 - c) On the one hand..., on the other...
 - d) Apart from that, ...
 - e) Likewise,
 - f) This is proved by the fact that...

(Answers: 1a, 2f, 3d, 4e, 5c, 6b)

2. Students then asked to read the text with argument and supporting evidence in it, find more examples of words and expressions of with the function mentioned above and write an essay with these words and expressions as many as possible.

Activity 3 for Objective 3-using the language to expressing critical thinking

Sometimes, students are eager to express themselves on some topics, but they haven’t enough confidence with language or haven’t enough preparation expressions or productive patterns, when teachers should encourage and engage them by providing some input they might need.

The students are divided into two groups and each group gets a different set of expressions based on the topic, one is for presenting, the other is for questioning.

Expressions for presenting

- The main point is ...
- The thesis statement is ...
- The permissive message is ...
- The upright message is that ...
- One example to support it is that ...

- It’s because ...
 - There are many ways to... firstly, ...
 - In summary...
 - Similarly, ...
- Expressions for questioning
- On the one hand...
 - What do you mean by that?
 - How much do you believe it?
 - Why do you think that?
 - How did make such a conclusion?
 - What’s your own opinion on it?
 - What evidence do you have for that?

Once the students get used to the process and become increasingly confident, the classroom will be noisy but fun. When the task comes to the end, students can be asked to write down their discussion and their reflection which actually belongs to creative stage of critical thinking.

6. FINAL REFLECTION

This study is merely a small element of a unit, a subtle part in a curriculum design, but the students and the teacher herself have benefited from the critical thinking component through language itself and the contents conveyed by the language. During the process, the classroom is full of vitality, with active interaction among students or with teacher. The goal and task are clear. The language environment is real and meaningful. The teacher works as a scaffold. It is essential for teachers to bear it in mind that Rome wasn't built in a day. Nor critical thinking. However, integrating and developing critical thinking into College English must be undertaken in every lesson, no matter how much frustrating and complicating sometimes. In addition, teacher themselves should deliberately train their own critical thinking, prepare critical activities and teaching materials as many as possible for students. Despite the research's somewhat limitation, such as lack of empirical research, and long-term and multifaceted data collection, at its core, it is a perfect teaching reflection which must be helpful for the author's following teaching. True, it is only a lesson plan for further explanation, but the truth is it consists of detailed and accurate activities for fulfilling the objective, which must provide teaching reference for other teachers and enrich relevant theories.

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Exploration of Public Physical Education Curriculum From the Perspective of Ideological and Political Theories

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Abstract: In the process of educational development, physical education is not only an important method to improve students' physical quality, but also a major means to cultivate comprehensive talents, which is directly related to the all-round development of students. At present, one of the design problems of public physical education curriculum is neglecting sportsmanship. The fundamental reason lies in lacking integration of moral and intellectual education and other concepts. Therefore, we should reform the public physical education curriculum actively from the perspective of ideological and political theories. This paper learns the problems existing in the current public PE curriculum, analyzes the reasons, and finally explains the innovative strategies of the public PE curriculum from the perspective of ideological and political theories.

Keywords: Ideological and political theories; Public physical education curriculum; Innovation

1. INTRODUCTION

It is proposed that building a strong educational country is an important method for the great rejuvenation of the Chinese nation. To accelerate the education construction, we should emphasize the dominant role of students and implement student-oriented teaching. Physical education is an important method to improve the quality of talents, as well as an important embodiment to implement the concept of character and civic virtue fostering. Therefore, it is necessary for physical education teachers to innovate the public physical education curriculum from the perspective of ideological and political theory.

1.1 Unclear Goals

Curriculum goals of physical education are clearly defined, including sports participation, skills, physical and mental health, and social adaptation. Among them, mental health enables students to have a positive attitude towards life and good self-regulation ability. [1] Social adaptation enables students to improve their own level of sportsmanship and to deal with events fairly. These two aspects are also the key to promote the all-round development of students and the important basis for the society to meet the requirements of qualified talents. From the current practical situation, however, some colleges and

universities pay too much attention to skills and exercise in the implementation of public physical education curriculum goals, but fail to reflect the mental health and social adaptation. As a result, students' cognition of public physical education curriculum is not accurate enough.

1.2 Unreasonable Curriculum Content

With the increasing number of sports events, the public physical education curriculum in the continuous reform can basically meet the physical education needs of students. [2] The rapid development, however, also causes insufficient analysis of the curriculum contents, with the problem of indiscriminate imitation. For example, new technologies cannot be introduced in teaching and skill acquisition is over emphasized. As a result, students' interest in entertainment cannot be satisfied, which leads to the result of lacking sportsmanship and moral education of physical education in the public physical education curriculum.

1.3 Insufficient Management

In China, the Ministry of Education issues related regulations on public physical education curriculum. Colleges and universities need to ensure effective implementation to these regulations. [3] According to existing data, the physical condition of college students is declining. The singular content and boring class of public physical education cannot meet the individual needs of students in colleges and universities. Some colleges and universities are not familiar with the specific regulations. Some does not follow the regulations in curriculum design and reform, which seriously affects the development of public physical education curriculum.

2. CAUSES OF PUBLIC PHYSICAL EDUCATION CURRICULUM PROBLEMS

Fundamentally, the reason why the public physical education curriculum cannot meet the requirements is insufficient understanding to moral, intellectual, and physical contents. Nowadays, teenagers are facing problems of overweight and increasing rate of myopia. China has been constantly promulgating relevant policies, emphasizing the role of sports in guaranteeing students' health, and even directly including students' health level in graduation

assessment. [4] In this case, the public physical education curriculum in colleges and universities gradually draws more attention. Colleges and universities take efforts to improve students' physical fitness and physical education awareness to improve the teaching quality of public physical education courses. However, it has to be admitted that the current public physical education curriculum in colleges and universities pays too much attention to physical education, but not to moral education. Moral education is not included in teaching objective, content, or design. In addition, moral education cannot be put into practice because there is no textbook for public physical education curriculum. Despite the improvement on students' fitness, the ideological and moral character of students are not developed.

From the perspective of students, physical education is much easier than moral education when it comes to public physical education. Because physical education itself is an intuitive teaching method. You can see the learning effect directly. [5] But moral education is an abstract and implicit process. It requires students to identify themselves from the inside, from acceptance to insistence. From the perspective of teachers, they can ensure teaching quality based on their own professional abilities. However, moral education requires much higher moral qualities of the teachers to help students improve their moral level. Therefore, we can see that physical education is relatively easy to implement, while moral education is more difficult. In the future development, the reasonable treatment of moral education and physical education is the important research content of the innovation of public physical education curriculum.

3. INNOVATION MEASURES OF PUBLIC PHYSICAL EDUCATION CURRICULUM FROM THE PERSPECTIVE OF IDEOLOGICAL AND POLITICAL THEORIES

3.1 Implementing Political Work System

As early as 2012, the concept of "character and civic virtue fostering" is put forward as an important part of the development of China's educational cause. This requires clear political stand to implement China's social values, cultivate students to develop good virtues to serve people better in the future. Therefore, when innovating public physical education curriculum, it is necessary to implement political work system into the whole process and realize effective reform of public physical education curriculum.

3.2 Implementing the Idea of Ideological and Political Theories

From the perspective of ideological and political theories, we should implement ideological and political theories throughout the public physical education curriculum. However, it should be noted that it is different from turning physical education class directly into ideological and political class, nor applying the latter content directly in the former. On

the basis of defining the objectives of PE curriculum, students should be able to make full use of PE classroom knowledge to understand the truth, goodness and beauty and learn the truth of being a human being through PE learning. In this way, teachers are able to help students establish correct values. [6] Public physical education itself has abundant ideological and political contents to integrate with ideological and political theories. For example, spirits showed in the sports, including unity, cooperation, hard work are important embodiment of ideological and political theories. Physical education teachers should be able to actively carry forward and explore these characters and teach related ideological and political theories to students for better development.

3.3 Building Professional Teacher Team

To achieve the ideal teaching effect in the public physical education curriculum, we should build a professional team of teachers. From the perspective of ideological and political theories, teachers should change their teaching mode for better understanding. Therefore, teachers should update their own ideas, keep pace with the times, and study related policies of our country, so as to contribute in the innovation of public physical education curriculum. While improving their own moral cultivation, it is also necessary to standardize students' sports actions and behaviors, so that teachers can have a deeper understanding of the ideological and political content of the course. In addition, because of different personalities and characteristics of students faced by teachers in the teaching process, teachers should be able to make teaching plans according to the actual situation of students and fully explore extracurricular resources. In this way, they are able to better improve students' physical education level while enriching the ideological and political content to solve the existing problems in the current public physical education curriculum and achieve ideal effect in the innovation of public physical education curriculum.

4. CONCLUSION

Generally speaking, we should integrate ideological and political theories in the public physical education teaching to improve the physical quality of students and better cultivate students' ideology and morality at the same time. In this way, we can help realize the all-round development of students, provide the society with morally, intellectually, physically and aesthetically comprehensive talents, and better improve the level of social development in our country.

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New Thinking on The Teaching Mode of International Economy and Trade Under the Demand of Innovative International Talents

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Abstract: Under the background of economic globalization, the rapid development of China's foreign trade, the market demand for international trade professionals. In addition, in recent years, with the development of innovation and entrepreneurship and the construction of "double first-class" universities, the high quality requirements of talents are becoming more and more prominent. Under the background of "double first-class" construction, it is an important task for colleges and universities in the new era to innovate teaching mode, actively respond to the theme of "innovation" and cultivate innovative international talents.

Keywords: Innovation; Internationalization; Teaching methods; The teaching reform

1. THE TEACHING DEVELOPMENT DIRECTION OF INTERNATIONAL ECONOMY AND TRADE UNDER THE BACKGROUND OF INNOVATIVE INTERNATIONAL TALENTS DEMAND

The major of international Economy and Trade mainly aims at cultivating high-quality talents who can meet the demands of economic globalization, master the basic theories and practical skills of international trade, systematically understand the relevant rules and trading mechanisms of international trade, and have a high-level international vision and strong innovation and entrepreneurship ability. Students majoring in international economics and trade may choose to engage in import and export business in foreign trade enterprises after graduation. Engaged in international cargo transportation, customs declaration and inspection related to foreign trade; Engaged in the primary financial and business management planning of foreign trade enterprises.

In today's economic globalization world trade increasingly frequent and complex, both the normal international trade affairs, and the other countries' trade war minefield, need a batch of high-quality professional staff, so the market demanding for foreign economic and trade talents emerging gradually, enterprise and unit of choose and employ persons requirements of conveying both theoretical knowledge, innovative spirit and practice ability of comprehensive talent. In addition, with the development and implementation of the national "double first-class" university construction, application-oriented

personnel training, innovation and entrepreneurship education and other plans, on the one hand, the country has increasingly higher requirements for the cultivation of international economic and trade professionals in universities, and universities have to change their teaching and training methods in accordance with the market demand. On the other hand, under this background, more and more attention and resources will be poured in. Therefore, the cultivation of international economic and trade talents will gradually develop from traditional "irrigation" teaching to entrepreneurial teaching, scientific research teaching and practical teaching under the dual driving force of pressure and power.

2. PROBLEMS EXISTING IN INNOVATIVE INTERNATIONAL TALENT TEACHING

2.1 Mismatch between teaching curriculum and training program

On the one hand, although each college course includes compulsory public basic course, professional basis, professional core courses, required courses and professional practice some of the university credit even more than 100 points, but it has also made some courses knowledge system overlaps is extremely high, strong homogeneity, the curriculum teaching hours and credit arrangements are very similar, led to excessive and lack of theoretical teaching and the cultivation of the scheme of teaching, such as a disguised form type provides colleges and universities have mature theory courses, forming line type teaching, not in accordance with the training plan of bilingual teaching, creative teaching, etc., especially the practice teaching of applied talents, It has not received enough attention; on the other hand, the timing of the course and training plan also reflected the contradiction, colleges and universities of the basic idea is: the teaching arrangements comprehensive knowledge transition to professional knowledge transition to practical skills, but many colleges and universities due to a late start, there are some blind spots in the arrangement of teaching time, including: subject to arrange order disorder, cause the teaching content can't cohesion; The arrangement of class hours is not enough, leading to the failure to complete the teaching content and training plan.

2.2 Lack of flexibility in teaching mode and assessment method

The instillation teaching focusing on narration and the one-sided assessment determining the success or failure by examination are the fixed means of our traditional education and also the main principles of the international economic and trade colleges and universities. A class lasts for 40 to 45 minutes, of which about 30 minutes are taught by the teacher and students take notes while listening to the lecture. Some small interactions may be added. However, the students' sense of participation and enthusiasm are extremely low, so most classroom lectures are presented as monologues by the teacher. Course hours short and low students but more interactive factors, at the end of the course the teacher can't familiar with the situation students participation in the curriculum, thus became the sole criterion for testing students request for examination, while the students through the exam assault, guess the test key methods such as the pursuit of "viva 60 goals, such appraisal way too stiff, single.

2.3 Teaching teachers and supporting teaching resources are not up to the standard

Young teachers are the leading figures in international trade teaching, and their teaching experience and energy are relatively deficient. From the perspective of experience, although most teachers in the field of non-international trade have excellent theoretical knowledge, their bilingual ability, practical ability in international trade and operational ability in supporting software are relatively weak. From the perspective of energy, as most young teachers are under the pressure of professional title evaluation or other scientific research tasks, their time and thoughts on teaching are relatively limited. In addition, the construction of supporting software, training bases and internship cooperative enterprises required by professional practice in colleges and universities also has great shortcomings, leading to the inability to carry out experimental teaching, practical training teaching and internship, which will greatly restrict the cultivation of applied and innovative talents.

3. COUNTERMEASURES FOR INNOVATIVE TEACHING REFORM OF INTERNATIONAL ECONOMY AND TRADE MAJOR

3.1 Improve the teaching curriculum and implement the new talent training program

On the premise of comprehensive quality education, it reduces the homogeneity, theory and non-specialty of teaching content, and improves its innovation, application and specialty. In order to conform to the international economic and trade talent training program, colleges and universities should lay stress on bilingual courses of language teaching, foreign trade practice courses of skill teaching and innovation and entrepreneurship courses of practice teaching in terms of teaching content. In addition, to adjust the order of teaching time arrangement, insufficient class hours and other problems, the basic premise and necessary conditions of reasonable talent growth of teaching

curriculum setting are not only the balance between teaching teachers and students, but also the integration of college education and talent market. Through the expansion and renewal of teaching content and the reasonable planning of teaching arrangement, the "double balance" between teaching task and teaching objective is achieved, and the "double insurance" between theoretical teaching and practical teaching is constructed.

3.2 Innovate teaching modes and enrich teaching assessment methods

As a rise late but gradually popular discipline, the professional teaching task in our country are mainly borne by the youth backbone teachers, with the aid of young teachers title evaluation and other scientific research resources advantages, explore a new mode of teaching with scientific research, for undergraduate students to participate in teachers' scientific research work, will be to make the transition to graduate teaching of undergraduate course teaching, teaching and scientific research, on the one hand, can alleviate the pressure of the teachers' scientific research, on the other hand can provide a higher level of government agencies and unit of choose and employ persons to develop international trade professional scientific research personnel; We should strengthen the existing teaching mode, give priority to "small class" and "interactive" teaching, improve the proportion of practical teaching and change the dominant position of blackboard lecturing. The teaching and assessment methods must be changed with the change of the teaching mode. Enriching the assessment methods can greatly improve the students' habit of "cramming before the exam", let the students no longer have the opportunity to prepare for the exam according to the "routine", and reduce the dishonest behavior in the traditional assessment methods to the greatest extent. Therefore, on the one hand, it is suggested to bring the whole teaching process into the final assessment system in a certain proportion; On the other hand, it is suggested to reduce the recitation score in the final examination and adopt non-standard answers to stimulate students' classroom creativity.

3.3 Strengthen the construction of teaching resources and improve teaching effectiveness

General teaching resources including teaching teachers and teaching facilities, for the teachers, there will be a study abroad experience or foreign language ability outstanding team of excellent teachers into the teaching of international trade, through the way of cooperation between colleges make up for the defect of teacher's professional teaching "experience", through the combination of teaching and scientific research to enhance the cooperation and coordination between teachers and students, and teachers teaching "energy". For teaching supporting facilities, on the one hand, "Internet +" teaching can be established with the help of the network. Teachers can release preview,

review and other tasks through the network, but also master students' learning situation in the background, so as to timely adjust the teaching plan. Students can keep in touch with teachers through the network, so as to effectively solve difficult problems. On the other hand, increase capital investment, strengthen the construction of professional experimental platform, practical training base, practice base and other resources, to provide basic guarantee for professional and applied teaching.

4. CONCLUSION

In the context of innovative international talent demand, the reform of international economics and trade teaching will promote the overall level of China's education, especially the exploration of its traditional theory teaching and practice innovation teaching is of great significance and urgent. Therefore, colleges and universities should accelerate the reflection and reform of their own teaching methods, so as to improve the teaching quality of international economy and trade, cultivate innovative international trade talents, and make contributions to the comprehensive promotion of China's educational cause.

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On The Development Path Of Chinese Traditional Sports Culture Under The Background Of Sports Globalization

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Abstract: Globalization has become an irresistible development trend in today's world. Under the influence of globalization, the world in economy, culture, environment and other aspects has become an interrelated and interactive whole. Therefore, under the background of globalization, sports issues and the development path of Chinese traditional sports culture have become one of the hot issues in cultural circles. This paper will explore this issue, first briefly describes the characteristics of China's national traditional sports culture, focusing on the development status of China's national traditional sports culture under the background of sports globalization, and points out its existing problems. Finally, it discusses the development path of Chinese traditional sports culture and puts forward suggestions.

Keywords: Globalization, Sports Globalization Background, Chinese Traditional Sports Culture

1. INTRODUCE

Today's world is a globalized world. The process of globalization is very fast and has become an inevitable trend. Under the influence of globalization, the local restrictions of many countries, ethnic groups and regions have been broken, and the world has become a community of shared destiny with mutual influence and close connection. Globalization is not only reflected in trade and economic exchanges, but also in cultural exchanges. Cultural soft power has become an important standard to measure a country's comprehensive strength and an important means for a country to exert its international influence. Carrying forward the excellent traditional culture of our nation and spreading and exporting the excellent culture have become the goal of every country's cultural development. The development and dissemination of culture will not only affect a country's economic and political development, but also have a significant impact on its international image, national comprehensive strength and international status.

Sports culture has been one of the most important components of cultural activities since ancient times. In the west, since ancient Greek times, people have the idea of strengthening the body. In China, the ancients also regarded physical education as an important subject of education, such as etiquette, music, shooting,

imperial, calligraphy and other six arts. Confucius also emphasized the education of shooting and controlling in the six arts. In modern times, the Olympic sports spirit has been applied to all aspects of social life. Therefore, sports culture is an important component of cultural strength, and is an important embodiment of the spirit of a country's traditional culture. It is necessary to explore the development of sports culture, especially in the context of sports globalization. It is necessary to focus on the analysis of the national traditional sports culture in China, provide better path analysis for its development, improve the level of sports culture development in China, and promote the further growth of cultural soft power in China.

2. THE CHARACTERISTICS OF CHINESE TRADITIONAL SPORTS CULTURE

Historical heritage: first of all, China's national traditional sports culture originates from the long-standing traditional national culture of the Chinese nation, which is closely related to China's cultural history, social history, ideological history, etc. With the changes of society, traditional sports culture is also changing in the long history, with a strong historical heritage, closely related to all aspects of social life.

The influence of Confucian Culture: our national traditional sports culture is deeply influenced by Confucianism to a great extent. In fact, it is not only the traditional sports culture, but also the "fundamental" cultural thought that runs through the traditional culture and national thought of our country. The traditional sports culture of our country integrates the core ideas of "benevolence", "righteousness" and "propriety" advocated by Confucianism into sports thoughts. The common people not only have the consciousness of strengthening their physical and mental health, but also have formed the concept of all-round development of physical and mental cultivation. They not only pay attention to moral training, but also pay attention to physical exercise, so as to integrate body and mind.

3. THE DEVELOPMENT STATUS OF CHINESE TRADITIONAL SPORTS CULTURE UNDER THE BACKGROUND OF SPORTS GLOBALIZATION

Globalization is the overall trend of world development, which is reflected in the development process of all aspects. The analysis of the performance of Chinese traditional sports culture in the context of sports

globalization is also helpful to analyze the nationality and uniqueness of Chinese traditional culture under the background of cultural globalization, which reflects the status of Chinese culture in the world cultural hundred flowers garden, so as to further develop and spread China's traditional sports culture.

It should be noted that there is an inherent requirement of "seeking common ground while reserving differences" in the connotation of the concept of cultural globalization. This means that each country and nation should keep its own unique national culture. Cultural globalization does not mean the convergence of global culture, but means that different cultures should adapt to the same era and form a global whole. It emphasizes the inclusiveness and development, and constantly improves its traditional culture, so that it will glow with its own glory and long-term vitality in the long history.

3.1. The embodiment of Chinese traditional sports culture under the background of sports globalization

3.1.1. Integrating Chinese traditional sports culture into modern sports spirit

The Olympic Games is the most grand sports activity in the world. Under the background of cultural globalization, the Olympic Games has become a stage for various countries to show their sports competitive strength, cultural soft power and economic competitiveness. The right to host the Olympic Games has also become the standard to measure a country's comprehensive strength and international status. The development of the Olympic Games perfectly reflects the development trend of sports globalization. The holding of the Beijing Olympic Games has shown the world the national traditional sports culture of our country and effectively explained the strong vitality of our traditional sports culture. While adapting to the development trend of the times, it has national characteristics and presents rich historical and cultural details.

3.1.2 The etiquette of Chinese traditional sports culture Ceremony is the core of our traditional ideology, culture and ethics. In Confucianism, etiquette not only refers to the etiquette in daily social activities, but also refers to the etiquette system of a country from a macro point of view, that is, the etiquette records of monarchs, ministers, fathers and sons. From the micro point of view, etiquette refers to a person's moral requirements, namely benevolence, righteousness, loyalty and filial piety. The thought of "propriety" runs through all aspects of China's social development, and has a profound impact on the national traditional sports culture. The "propriety" in Chinese traditional sports culture not only makes us abide by the rules and make progress actively in sports activities, maintain the world sports competition order and obtain honor for our country, but also make us show the sports spirit of friendship first and competition second, and show the cultural style of great powers.

3.1.3 Wushu

Wushu is an excellent product of Chinese traditional sports culture and a unique form of national sports culture. Chinese Wushu is broad and profound, which has attracted the attention of many foreign friends. Wushu is also the first Chinese traditional sports culture recognized by the world. Long ago, Bruce Lee's Chinese Kung Fu was popular all over the world, which aroused the interest of friends from all over the world for Chinese traditional sports culture, and showed the strong attraction of China's traditional culture. At the same time, the development and dissemination of Chinese martial arts has enhanced the sense of respect for Chinese national culture by foreign friends.

In China's traditional martial arts, the spirit of "ceremony" is full of, such as various martial arts etiquette, free hand ceremony (boxing ceremony), hand delivery ceremony, receiving ceremony, holding ceremony and so on. In addition, traditional Wushu culture also represents the unique development path of Chinese culture in the world culture. In the era of global science and technology, the world is dominated by many Western spirits, and China's national culture helps to break this single danger. The development of traditional Chinese medicine and the development of Wushu provide another possible and unique way of thinking and development path for world culture.

3.2. The problems of Chinese traditional sports culture under the background of sports globalization

First of all, there are still some problems in the development of traditional sports culture in China. For example, in the martial arts education, many places still follow the feudal tradition of passing on male to female, or they only teach martial arts within the family, which cut off the wide spread of martial arts with blood relationship as the threshold. This is obviously the harm of feudal conservative thought and feudal clan thought. If we do not improve this situation, it will gradually make our traditional sports culture lag behind the times, be abandoned by the times, lose vitality and vitality, and because of the small number of inheritors, there is a risk of loss.

Secondly, the traditional sports culture of our country has the backward thought of self-respect and self-reliance. Under the background of sports globalization, the development of traditional sports in China must conform to the development direction of the times, and integrate into the fate community of world culture while retaining its own characteristics. At present, some traditional sports culture educators in our country disdain the foreign culture, and even exaggerate their own culture to a certain extent. As a result, it hindered the development of Chinese traditional sports culture in the meaningless arrogance and struggle, which made the traditional sports culture immersed in feudal thought and could not develop forward.

Finally, China's traditional sports culture is extremely lack of young blood, the degree of inheritance is low.

On the one hand, due to the cultural characteristics of many national traditional sports and cultural activities, it needs ideological accumulation and long and hard basic skills training. This makes the majority of young people do not have a high level of understanding of traditional sports culture, and can not persist in the long basic training. On the other hand, due to the fact that the national traditional sports culture in our country is not very interesting, there are many interesting sports that attract young people's attention in modern sports. Coupled with the diversion of games, network and other factors, the focus on traditional culture is less and less, and there is a serious lack of young blood to invest in the learning and dissemination of traditional culture, and the degree of inheritance is low.

4. THE DEVELOPMENT PATH OF CHINESE TRADITIONAL SPORTS CULTURE UNDER THE BACKGROUND OF SPORTS GLOBALIZATION

In view of the above characteristics of China's national traditional sports culture, as well as the existing problems in the development, this paper puts forward the following suggestions for the development path:

4.1. Open the door to the world and make the older people of traditional sports culture accept the advanced ideas

First of all, we should get rid of the feudal closed and conservative ideas, open up the country to accept the transformation of advanced ideas in the world, and establish excellent ideas such as cultural equality, gender equality, etc., so that the older and deeply influenced by traditional feudal thoughts can really change their ideas. In addition, we should devote ourselves to the teaching and communication of traditional sports culture, and break the self-contained development mode of national traditional sports culture from the inside.

4.2. Adhere to the diversified development of integration

To maintain its own cultural uniqueness is the core and top priority of development. Therefore, we should adhere to the dominant position of national culture, adhere to the concept of integrated development, and then on this basis, in a diversified way. For example, learning from foreign excellent cultural development mode, or adding western modern sports elements into the national traditional sports culture, this is more conducive to our national traditional sports culture to adapt to the requirements of sports globalization, and spread the traditional sports culture, which is easy to be accepted by foreigners, and is conducive to carry forward the national traditional sports culture in China.

4.3. Strengthen the innovation of traditional sports culture to attract young people

Innovation refers to two aspects of innovation: one is the content innovation of Chinese traditional sports culture. Let the broad and profound national traditional sports culture start from a simple and easy to understand basis, and to achieve although simple but

not dull. We can integrate some interesting events of ancient culture into the content, so as to help young people truly understand the charm of our national traditional sports culture, and make them take the responsibility of inheriting and carrying forward the national traditional sports culture from the heart. The second is the innovation of traditional sports culture communication means and teaching methods. Some games or competitive links can be added to the hard basic skills training to reduce the difficulty of young people's learning contact and improve their interest in learning.

4.4. Relevant departments should strengthen policy encouragement to help promote the inheritance of Chinese traditional sports culture

The relevant cultural departments of the country should introduce corresponding incentive policies, such as reducing the tuition fees of traditional sports culture learning and increasing national subsidies. The establishment of a complete national traditional sports culture consulting system to help ideological guidance. Establish the honor mechanism, and give certain awards and honorary titles to the excellent inheritors and disseminators of national traditional sports culture, and encourage people to actively participate in traditional sports and cultural activities.

5. CONCLUSION:

To sum up, China's national traditional sports culture is the cultural advantage of our country, and the profound cultural heritage provides a strong vitality guarantee for it. We should protect and develop our national traditional sports culture and improve the problems in the development. While adhering to the integrated development of national traditional sports culture, we should actively learn from the world's advanced culture, further promote the inheritance and dissemination of our national traditional sports culture, and make contributions to the improvement of China's cultural soft power.

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On the Influence of Different Programming Languages on the Development of Computer Application Software

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Abstract: According to the statistical bulletin on the development of human resources and social security in 2019 issued by the Ministry of Human and Social Affairs of China, the highest employment rate and average salary of college students in 2019 are still computer network majors, and computer network majors are still the most popular majors under the background of students' employment in schools today. Practical teaching is an important part of applied computer network major. If the practical teaching process is proper, students' practical ability will be greatly improved, which is beneficial to students' employment. This paper analyzes the current situation of practical teaching from the direction of computer network, probes into the significance of the construction of practical teaching system, and finally puts forward some suggestions to promote the practical teaching of computer network specialty.

Keywords: Applied Undergraduate Course; Computer Network Direction; Practical Teaching

1. INTRODUCTION

With the continuous updating and development of information technology, various new technologies have been applied to people's real life, which not only changes people's production and life, but also promotes the communication and communication between people [1]. "Internet +" has become the current development model of various industries in China. As the fundamental technology of this model, computer network has been strongly supported by the state. In the field of education, the existing colleges and universities in our country have set up computer network related majors one after another, but some colleges and universities still have many problems because of their own strength, such as the strength of teachers, the lack of practical teaching places, students' ability to compete for employment and so on[2].

2. CURRENT PRACTICE OF APPLIED COMPUTER NETWORK SPECIALTY

In the actual teaching process, due to the limitations of textbook content, teachers' experience and practical training sites, the full integration of theory and practice is not mature enough, but most of them still lay stress on theoretical knowledge and are not close. It has to do with practice.

(1) Insufficient emphasis on teaching management

Teaching management is not enough attention is the biggest problem in the practice of applied computer network major. Many applied colleges and universities in our country generally require attention to curriculum practice, which is dominated by practical teaching and supplemented by theoretical teaching, but it has not been well implemented in the actual teaching process or mainly based on theoretical teaching. For a long time, it is easy to discourage teachers' enthusiasm for carrying out practical teaching, which is not conducive to teachers' carrying out practical teaching, and it does not meet the requirements of applied computer network specialty.

(2) Lack of training conditions

The lack of training bases and training conditions is also a problem in many colleges and universities. At present, a large number of relevant colleges and universities in China lack sufficient, complete and advanced experimental equipment or laboratories in the direction of computer network. Under the current conditions, many universities are not allowed to carry out practical teaching, which is based on the simple software simulation in the common computer room. It does not meet the basic requirements of network technology training courses in China[3].

(3) Lack of practical teaching experience for teachers

Teachers' lack of practical teaching experience is also a factor that restricts the development of practical teaching in schools. Teachers in colleges and universities hold more theoretical knowledge, but they are slightly weak in practice. Therefore, many schools employ some senior technical personnel from enterprises to teach, but the cost is high, and the link with the schedule of theoretical knowledge is poor, so practical teaching as a whole is still unsatisfactory, the most fundamental reason is that the school lacks teachers with practical experience, mostly empty theory, lack of practical "theorists", unable to meet the needs of practical teaching.

(4) Students lack initiative in practical learning

Students lack the initiative of practical learning, which is also an easy problem in practical teaching. The reason for this problem is that, in the final analysis, the traditional education system and teaching mode of our country put students' laziness to the maximum, so students only need to study and absorb according to the teacher's words step by step. In the process of computer

training, many concrete operations are first demonstrated by the teacher to demonstrate the process, talk about some matters needing attention, students in accordance with the process of practical operation, and according to the advice of teachers to avoid the problems that may be encountered in the process of practice. This model has some merit, but for students, it has lost the opportunity to find problems, solve problems and sum up experience from experiments. If this kind of verification experiment is arranged in large quantities, it will eventually lead to the students' narrow knowledge, the ability of independent thinking, and the long-term past will cause the students' interest in practical operation to decline, which is not conducive to the students' learning.

3. CONSTRUCTION AND SIGNIFICANCE OF PRACTICAL TEACHING SYSTEM

(1) The mode of practical teaching in the direction of computer network

For the computer network major, it is also divided into two parts: theory and practice, theory teaching is mainly in the classroom, mode or traditional teaching mode, students absorb a lot of theoretical knowledge, practical teaching content is carried out in the way of cooperation between enterprises and schools, regularly send students to enterprises to carry out practical teaching, the teaching content arrangement is more reasonable, the computer network direction course design is often "project teaching, case-driven" teaching method. The emphasis of this teaching method is on the project, driving the teaching with the actual project, and using the case to deepen the students' impression. First, the teacher obtains the specific project and refines the theoretical knowledge involved in the project. In compiling a similar teaching case according to the actual level of the students and the progress of the teaching, it is divided into students. In the process of the students' completion, the teacher does not have to participate too much, let the students do it independently as far as possible, and the students summarize the existing problems through the form of mutual discussion of the inquiry materials. This teaching method largely avoids the low initiative of the students in the traditional teaching mode, and just waits for the teacher's indoctrination. Under this new model, learning can exert one's own intelligence, discover one's own learning problems from practice, absorb knowledge to a large extent with the help of teachers, and discuss between students can also cultivate students' innovative ability and a sense of teamwork promotes the growth of students.

Teaching model based on process assessment

The course examination method with higher requirements for practical operation is carried out in process examination. In other words, the knowledge idea module is a hierarchical, phased evaluation. Try to solve the problems such as unilateral evaluation content, students' neglect of daily learning, and single

evaluation system.

(2) Construction of Practice System

At present, many colleges and universities in our country design teaching cases around practical projects, carry out practical teaching, design and construct the knowledge dimension, project dimension, case peacekeeping ability dimension of relevant courses in the direction of computer network, and form a multi-dimensional first-line curriculum system. In this system, the practical skills of students are emphasized, the theoretical knowledge learned in daily practice is put into practice, the construction of students' knowledge system is completed, and the practical spirit of students is also cultivated in the independent design project, which is beneficial to the development of students in the future.

4. COUNTERMEASURES FOR STRENGTHENING PRACTICAL TEACHING

(1) Strengthening the teaching management of practical teaching

It is necessary for the school to strengthen the teaching management of practical teaching, establish a scientific and reasonable evaluation system of practical teaching, and give students the most free practical learning opportunities in the existing hardware and software facilities. It is also necessary to ideologically liberate teachers' teaching ideas and arouse teachers' enthusiasm for practical teaching. Only when the school, teachers and students work together can we finally achieve the goal of practical teaching.

(2) Improving the experimental conditions of hardware and software

Improving the experimental conditions of hardware and software is also an urgent problem to be solved in practice simplicity. Computer training is different from other professional training, and it needs professional equipment, venues, such as hardware and software facilities can not reach, then the practical effect is equally unsatisfactory. The school can combine the existing professional development and funding arrangements from the overall point of view, can upgrade the existing facilities in part (conditional can be one-time upgrade), to ensure the optimization of resources, in addition to the construction of simulation laboratory and physical hardware laboratory, to maximize the use of existing equipment efficiency.

(3) Strengthening the construction of "double-qualified" teachers

Strengthening the construction of teachers' team is also the most important part of carrying out practical teaching. Teachers are the premise of carrying out all kinds of teaching. "Double-qualified" teachers mean that teachers should have both theoretical teaching experience and practical work experience, and grasp teaching objectives from both theoretical and practical aspects. In this regard, the school can contact the relevant enterprises to provide the existing teachers with the opportunity to go out to study and study,

improve their skill level; it can also hire senior technical personnel of the enterprise to enter the campus, open a classroom to teach, strengthen the relationship between school teaching and the actual situation of the enterprise, and broaden the knowledge of teachers.

5. CONCLUSION

Perfecting the practical teaching link of computer network direction is an important embodiment to realize the purpose of applied undergraduate education. In the continuous progress and development of applied undergraduate education, we should keep up with the pace of the times, explore and study the practical teaching methods of network technology majors from many angles, constantly improve the training

objectives, and train more complex talents with practical ability.

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Innovative Research on Detachable Folding Safety Windows and Window Bodies

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Abstract: This paper introduces a kind of detachable folding safety window, which is combined with windows. When the window is opened, the safety window will open and play a role. When the window is closed, the safety window will fold and shrink. The safety window controls the folding and fixing of the safety window by the way of the bolt and the window slot lock. The safety window retains the advantages of the traditional safety window and balanced the focus of the product, without changing the focus of the use function. At the same time, the advantages of economy, practicality, aesthetics and daylighting are combined, which can better meet people's needs. People's demand for products can better drive the development of products.

Keywords: Hinge; Pin; Fold; Remove

1. INTRODUCTION

With the improvement of people's living standard and economic level, parents accompany to their children is very few. The safety of children at home alone is not guaranteed, especially the children living in high-rise residential areas in cities. There are more and more potential dangers around children [1-3]. In recent years, children fall from buildings frequently. Because of the installation of hanging safety windows, families cannot open the safety windows to escape in case of fire, which leads to casualties. The potential safety hazards caused by windows cause people to think about safety. In view of the shortcomings of ordinary safety window, combined with its advantages, continuous innovation, research and design of a new type of detachable folding safety window and window body will become the development direction of security and home safety. In this paper, through the research and analysis of the safety window which is widely used in the market, from the perspective of safety, practicality and innovation, the design concept of removable folding safety window is proposed to meet the needs of living and production for safety window.

2. THE TYPES AND PROBLEMS OF EXISTING RESIDENTIAL SAFETY WINDOWS

2.1 Fence safety window

The fence type safety window extends to the outside of the window to make the effect of hanging outside. The extension part can be used for clothes drying and other daily life. Because of its high practicability, it is favored by everyone. However, once the fence type

safety window is installed, it will form a closed state with the building. In case of fire, it is impossible to escape quickly. The fence structure is simple and easy to be damaged, and the safety performance is not high.

2.2 Anti-theft woven net

Compared with the safety net technology, the safety performance of the woven window is compared with the safety net. When the braided net is damaged, the alarm device is automatically connected to prevent theft. The safety index of the device is obviously improved, but the cost also increases slightly. After the installation of the braided net, a closed system is formed between the braided net and the building, and the security of anti-theft is enhanced. However, when an accident needs to escape or rescue, the closed system is not conducive to safety.

2.3 Stealth anti-theft net

Invisible anti-theft net is a kind of steel wire mesh connected by very fine steel wires, which is difficult to find when viewed from a distance. Each steel wire can bear more than 110 kg of tension, with good anti falling function. Its special design is that when the steel wire is cut, it will automatically connect with the alarm setting, and the alarm will send out a sharp sound of 120 decibels, which can effectively scare off the thieves. The invisible anti-theft net is suitable for the residents with large balcony or glass area. However, the types of most users' home windows are not distributed as a whole, so the invisible anti-theft windows have certain constraints

3. PERFORMANCE COMPARISON

Different designs have different design concepts and different emphasis on product performance. By comparing and analyzing the performance of the existing safety windows in the market, all the products have their own unique advantages and inevitable disadvantages.

3.1 Anti-theft function

Anti-theft cannot be foolproof, but it plays an important role to a certain extent. For the anti-theft effect, the fixed anti-theft effect is more significant than the movable anti-theft effect, the movable anti-theft effect decreases. Multiple anti-theft measures are better than single anti-theft measures, combined with high-end technology such as alarm is better than ordinary anti-theft effect, and combined with high-tech anti-theft is more humanized, which can minimize the risk. With the development of science and technology, the performance of materials has also

made great progress. Synthetic materials combine the advantages of a single material, magnify the advantages, and have better anti-theft effect.

3.2 Escape function

Safe escape is an effective measure to ensure the safety of people's life and property after building fire, earthquake and other disasters. It is an important content of building fire prevention. On June 16, 2019, a fire broke out in a residential building in Guangzhou. The fire was on the top floor of the building. The fire was serious and the fire tongue was out of the window. When the firefighters used the ladder to rescue, they found that three members of a family were trapped in the fire because of the security windows. The parents protected the children tightly. As a result, the mother was killed in the fire, and the father and child were rushed to the hospital. This incident caused people's attention. Some netizens pointed out that the main reason for the tragedy was that the security net on the balcony hindered survival. Most netizens agree that "the anti-theft network has not played a role in anti-theft, but has become an obstacle to survival".

From the point of view of escape, mobility is obviously better than fixed type. Many fires occur every year in our country. Because of fixed anti-theft, survivors cut off the escape path, causing casualties or delaying rescue time. In some new regulations, it is constantly mentioned that the breach of escape should be left in the anti-theft design.

3.3 Beautiful performance

With the development of social production level, the safety window has experienced a development process from scratch, from rough to detailed. With the improvement of living standards, people's pursuit of beauty is also gradually strengthened. From the beginning of the security window only with anti-theft function, to now a large number of functions and beautiful community use, can fully explain the rapid development of safety windows.

4. REMOVABLE FOLDING SAFETY WINDOW AND WINDOW BODY

4.1 Make up the system

The detachable folding safety window and the window assembly include a folding window part, an alarm system and a latch bolt in the folding window.

4.2 How it works.

Folding window the safety window is combined with the window of the resident. When the window is opened, the folding safety window will be closed. When the window is closed, the bolt of the folding safety window will move to the lock point corresponding to the upper window slot, and the folding window can be fixed. When the safety window is cut off, the alarm system is automatically connected to scare off the thieves and protect the personal safety and property safety of the residents as much as possible.

If the escape window is cut off, it is possible to leave

a break through the door due to the safety operation. There are good protection measures for children's accidental falling from height, and infrared sensor is set in the safety window. Whenever a child approaches the window, a warning will sound to remind the family members, and it will also be connected to the connected mobile phone in real time to achieve the effect of reminding. Most of the materials of safety windows are made of synthetic materials. The advantages of each single material are fully utilized. The materials of safety windows have enough toughness to avoid sudden brittle fracture, so they can better protect children's safety.

4.3 Aesthetics

The safety window is made of synthetic materials. The toughness of synthetic materials can protect personal safety. The composite materials also have good ductility. For beauty, the combination of steel wires can change the pattern of wire mesh, which greatly improves the aesthetics. The production material is thin, which is difficult to find when viewed from a distance. It has a certain beauty. The extremely fine production material makes the use of the safety window not cumbersome and highly operable. The beauty is not only reflected in the outdoor beauty, but also in the indoor lighting area. When the aspect ratio of indoor projection reaches the golden section point, it is the most beautiful figure accepted by human vision. The traditional safety window is made of course materials, which leads to the division of indoor lighting area, which makes the space narrow and crowded. The new type of safety window is made of fine material, the lighting area of indoor window will not be damaged, and it has certain beauty and comfort in vision.

4.4 Lightness.

The main purpose of the window is to light. For the traditional safety window, due to the thick material, the lighting of the window has a certain degree of occlusion. The indoor lighting area is divided by the shape of the safety window, which makes the space narrow and crowded visually, which greatly reduces the comfort of the residents.

4.5 Practical value.

The detachable folding safety window and window body proposed by the new design concept meet people's design requirements for economy, practicability and aesthetics, and at the same time, it also has its own functions, and the most important function emphasis in use has not been reduced. Compared with the traditional safety window, the new safety window is more suitable for the development of society.

5. CONCLUSION

Based on the traditional safety window, this device combines the advantages of software technology and hardware, and overcomes the defects of traditional safety window. In terms of life, personal safety and

property safety have been guaranteed. In terms of economy, the price of synthetic materials is favorable, which has played an important role in the protection of children's personal safety and property safety. However, the device is still in the design stage, and there are still some defects. For example, the market survey in the early stage of product design has the problems of localization and singleness. The survey population is mainly residents, and the survey of producers is slightly insufficient. It is impossible to predict the problems in the material selection and manufacturing process selection in the production process. With the increase of the users of the products, whether the manufacturers can study the relevant templates for mass production in the later stage of production, these defects will be continuously found

and improved in the later use process.

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Optimization Strategy of Fast Image Defogging Algorithm Based on Dark Channel Prior

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Abstract: In this paper, the dark channel prior defogging algorithm is analyzed, and aiming at the shortcomings of the algorithm, optimization measures are proposed to improve the bright area to achieve a more ideal defogging effect. The experimental results show that for the same image, the average gradient and running speed of the optimization algorithm are better than he algorithm, and it has more advantages in image defogging.

Keywords: Dark channel a priori; Image defog; Algorithm optimization

1. INTRODUCTION

In foggy weather, the floating particles in the atmosphere absorb and reflect the light, which leads to the blurred image quality and gray color, thus losing the research value. Therefore, the haze in the image can be effectively removed through the dark channel prior, and the bright area can be optimized, which has greater practical significance and application value [1-3].

2. DARK CHANNEL A PRIORI FOG DEFOG ALGORITHM

The algorithm is proposed by he et al. After collecting a large number of haze free images, it is found that in most regions without sky, at least one-color component value of their pixels is close to 0, that is, the light intensity in this region is small. Taking Image J as an example, its dark channel is defined as follows:

$$J(x) = \min(\min(j^c(y))) \quad (1)$$

Where j represents the dark channel, the value range of C is r, G, B , which respectively represents the three-color channels R, G and B ; Y represents the local window area, with pixels (x, y) as the center. According to formula (1), the minimum value of each pixel should be calculated to ensure that it belongs to the original image gray image, and then the minimum value filtering is performed on the image. The filtering radius depends on the size of the window area. The flow of the algorithm is as follows:

Step 1: According to the formula (1), the dark channel image in the fogged image can be calculated;

Step 2: To evaluate atmospheric light strength and transmission rate, assuming that the transmission rate is the same in each region, the presence of this indicator can lead to a white edge band at the edge of

the modified image, or "halo", when the atomized image is restored. In this regard, the transmission rate index needs to be optimized. In the He algorithm, the use of soft keying is advocated to obtain the same transmission rate picture as the original image details, but the calculation of this operation is large and takes a long time to complete.

Step 3: Optimize the transmission rate and restore the original image after obtaining the overall atmospheric light strength and transmission rate index. However, the result of this way of de-fogging is dark, and the sky color is prone to distortion, need to be optimized measures to solve.

3. DARK CHANNEL A PRIORI IMAGE DEFOG OPTIMIZATION MEASURES

Due to the defects of he algorithm, this paper optimizes and innovates the algorithm, and proposes a defogging algorithm based on HSI spatial model. Firstly, Retinex algorithm is used to preprocess the foggy image to enhance the edge information of the image. Then, combined with morphological algorithm, the sky area is selected and color processed. Finally, the dark channel of non-sky area is de-fogged to obtain a clear image.

3.1 Calculate The Transmission Rate

The value of atmospheric light intensity mainly uses the pixel with the highest concentration in the fog. Firstly, the point with the highest brightness in the dark channel is selected, and then the corresponding haze image value is averaged to obtain the light intensity a . In the dark channel, the pixels are arranged according to the brightness value, the first 0.1% pixels are selected, and the point with the largest pixel value in the transmission image is selected among these pixels. The haze free image can be restored when the transmittance and light intensity a are known. In the defogging optimization, the distance parameter from pixel to atmospheric light point is introduced to optimize the bright area. The parameter can be expressed as follows:

$$D(x) = \sqrt{(x_r - A)^2 + (x_g - A)^2 + (x_b - A)^2} \quad (2)$$

In the formula, X_R, X_G and X_B represent the image component values of pixel x respectively, and the smaller the value of $D(x)$, the closer the pixel value is to the atmospheric light intensity, the estimation error of transmittance will increase, and the defogging effect

will be adversely affected. In order to improve the image quality, the transmittance should be adjusted, and the pixel range should be set as the distance parameter d_0 . If it is greater than this value, it will be far away from the atmospheric light, and the transmittance is consistent with the actual situation, so there is no need to adjust. At the same time, the transmission adjustment is expressed in the form of piecewise function, and the segment positions are closely connected, so there will be no jump after adjustment, so the more ideal defogging effect can be obtained.

3.2 Image Defog

According to the investigation and research, there is a common point in the color distortion area, that is, their brightness is close to the atmospheric light intensity. Generally, an RGB image contains three color channels, namely red, green and blue. The brightness value of each channel is between 0 and 225. In order to make the color values of high brightness pixels closer to each other, we can reduce the value of a certain channel, and then use the dark channel defogging algorithm to get the haze free image, and then select the pixels with similar atmospheric light value to combine. If the number of pixels in the set is n and each pixel has three color channels, a new defogging image can be obtained by formula (3). After calculating the values of atmospheric light intensity and transmittance, the following formula can be used to calculate the image J after defogging. The formula

is as follows:

$$J(x) = \frac{I(x) - A}{\max(t(x), t_0)} + A \tag{3}$$

Where t is the transmittance and a is the atmospheric light intensity. When the value of T gradually decreases, the value of J will increase, resulting in the whole image white. Therefore, a threshold value t_0 should be set. When the value of T is lower than T_0 , the two should be the same. The ideal defogging effect can be achieved when the value of T is 0.1.

3.3 Comparative Analysis

Through a large number of simulation experiments, we can see that the optimized algorithm has an ideal correction effect for the fog image in the bright sky. In this experiment, using window 10 operating system, the main frequency of the processor is 2.53GHz, and the algorithm is compared with the algorithm in MATLAB r2012a. From the calculation speed, visual effect and contrast, the experimental results are compared as shown in Figure 1. In the graph, the original graph, the algorithm correction chart and optimization algorithm correction chart are in turn. According to the image, the fog in the original image is large. Although the he algorithm can achieve certain defogging effect, the color of the sky area in the original image is distorted, and the sky color of the optimized image is more natural, which shows that the algorithm has strong defogging effect and is more suitable for the sky area.



Figure 1. Defog contrast image

From an objective point of view, this paper analyzes the advantages and disadvantages of various algorithms from two aspects of program running time and image average gradient. The former is related to the operation speed, while the latter can reflect the contrast rate of small details of the image, that is, the change of multi-dimensional direction density, thus reflecting the relative clarity of the image. The larger the gradient value is, the better the restoration effect will be. In **Figure 1**, the resolution of the original image is 584×876 , and the average gradient is 2.016. The comparison results are shown in **Table 1**.

Table 1. Compares the defog effects of different algorithms

	Running speed(s)	Average gradient.
He Algorithm.	20.4015	5.016
Optimised algorithm.	5.2340	5.351

4. CONCLUSION

To sum up, in terms of image defogging, the previous he algorithm may cause image color distortion. In this paper, the algorithm optimization measures are proposed. The dark channel theory and atmospheric scattering model are combined to make the restored image clearer and more natural, and enhance the contrast and brightness, which is more suitable for sky area image correction. At the same time, a large number of experiments are carried out to verify the feasibility of the algorithm. Experimental results show that compared with other algorithms, it has more advantages in terms of operation speed and average gradient.

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Application of Artificial Intelligence in Computer Network Technology Analysis

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Abstract: With the rapid development of information technology in China, more and more fields are stepping forward to informatization. As a high-tech product in the 21st century, artificial intelligence technology not only brings human beings into a new research field, but also expands the functions of artificial intelligence in many aspects with the wide application of artificial intelligence technology. The rapid development of China's computer network technology, which makes the relevant researchers have a sudden fantasy, the use of artificial intelligence and computer network technology combined, this conjecture has attracted the attention of many industries. This paper analyzes the theory of artificial intelligence technology and computer network technology, and discusses the application of artificial intelligence in computer network technology.

Keywords: Artificial intelligence; Computer network; Analysis; Application; Research

1. INTRODUCTION

As the latest scientific product, artificial intelligence not only includes many scientific fields, such as psychology, computer science, mechanical technology and so on. The emergence of artificial intelligence also indicates that more and more industries are marching towards mechanical intelligence. After all, artificial intelligence can replace human beings to complete some work with high risk index, high complexity and strong mechanization. The occurrence of this situation not only makes the times get rapid development, but also changes people's life needs.

2. THE MEANING OF ARTIFICIAL INTELLIGENCE

The principle of artificial intelligence is to work out the thinking mode and work style of human through computer, and use the function of computer to calculate the fast operation mode with small error rate. From the standard sense, artificial intelligence belongs to a kind of computer technology, and the emergence of artificial intelligence is to complete some fixed and mechanical work more efficiently in this information technology era.

3. PROBLEMS IN COMPUTER NETWORK TECHNOLOGY

3.1 Safety Issues

With the advent of the information age, people's use of computers is more and more convenient. This situation

also makes many people exploit the loopholes of the network. For example, network hackers invade users' computers through Trojans and viruses, which makes it easy for customers' information to be leaked and computers to produce different degrees of failure [1]. The most famous case is the panda burning incense virus which appeared in 2006. It not only has a strong transmission power, but also constantly invades personal computers and websites, which has brought incalculable losses to many users, enterprise LANs and Internet cafes. Since then, computer security has become the core issue of Internet development.

3.2 Big Data Resources

In recent years, big data resources have become the darling of the new era, and its emergence can be said to be based on artificial intelligence. However, in the process of obtaining resources from big data, there are still problems such as discontinuity and irregularity, which make it difficult to implement and deal with computer technology [2]. For example, when people use their mobile phones to watch Taobao and news, these apps will always push some items and events they like to see. This is the role of big data resources. And the emergence of this situation, also led to illegal elements through Taobao brush single, brush flow and other means of a large amount of money.

3.3 Information Management Issues

There is no doubt that the role of computer network, but to maximize its function, but also to strengthen the information management of computer network. In order to ensure the security of the application of an intelligent and reliable network. But at present, when the computer network fails, it cannot self-diagnose and solve. Finally, computer engineers are needed to solve the problem of network failure, which is also the focus of restricting the development of computer network.

4. APPLICATION OF ARTIFICIAL INTELLIGENCE IN COMPUTER NETWORK TECHNOLOGY

4.1 Application In Network Security Management

How to apply artificial intelligence technology to computer network is also the difficulty of combining the two. The role of artificial intelligence in computer network mainly includes: protecting the security of user's mailbox, intelligent firewall system, virus Trojan detection technology.

First of all, the protection of mailbox security mainly refers to the use of intelligent anti spam system to

automatically classify customers' spam in the open mode, and comprehensively protect users' mailbox security.

Secondly, the intelligent firewall system uses intelligent prevention and control measures to block and prevent the relevant virus information, so as to ensure the safety of users' computers to the greatest extent.

Finally, virus Trojan detection technology can process, collect and classify the user's computer data to filter out the virus and Trojan files in the computer, so as to ensure the safe operation of the computer network [3].

4.2 Application Of Network Information Service

The agent technology in artificial intelligence is composed of database, knowledge base and inference system. This technology can not only filter information, collect information, organize information for people, but also can automatically carry out work arrangements, realize the automation of work content, so as to improve the use of human computers and facilitate people's daily life.

4.3 Application Of Network Management And System Evaluation

In the world of the Internet, the network has the characteristics of dynamic and transient, which also makes the development of the Internet work has no small challenge. And artificial intelligence expert level knowledge base technology, in this respect, has played a vital role, especially for the management of computer network has been greatly improved. And the expert level knowledge base technology, accept the professional academic theory and experience in a certain field, and then input the summarized experience into the artificial intelligence system. Finally, when encountering problems in related fields, artificial intelligence solves them through the experience of problems [4]. The emergence of this artificial intelligence system not only improves the intelligent efficiency of the computer network, but also saves the evaluation time of the system, and also makes a great contribution to the further development of the computer network.

4.4 Application In Teaching

As an important problem in the social development of our country, teaching problem has been perplexing many education researchers. Whether the emergence of artificial intelligence can replace teachers has become a hot topic in the new era. It is a difficult point for the integration of artificial intelligence and computer technology to let computer be the people's teacher, the guide of students and the transmitter of experience. It has to be said that computer education

also has strong advantages, such as the reserve of knowledge base is incomparable to ordinary teachers, which also enables computer education to provide better services for students and ensure the cultivation of high-quality socialist successors for our country. But the shortcomings are also very obvious, especially for the teaching methods of psychological education for students, computer education is difficult to compare with traditional education. For example, there is less interaction between teachers and students, which makes students feel strange to teachers psychologically; the contrast of teachers for classroom atmosphere is also unmatched by computer education [5].

5. CONCLUSION

To sum up, the emergence of artificial intelligence also represents the extension of human intelligence, but it is also the necessary science and technology for the development of the times. This paper discusses the meaning of artificial intelligence, the problems existing in computer network technology and the application of artificial intelligence in computer network, and implements the deep integration of the two, making the computer network technology more secure, faster and more stable.

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Artificial Intelligence Decision Support Based on Broad Ant Colony Algorithm

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Abstract: The generalized ant colony algorithm assumes that there are many ant colonies in different nest and food position. It can be found that different groups of ants are exploring the best path of nest and food. At the same time, with the increase of pheromone intensity, no pheromone appears in other paths. Therefore, there are different ways to find food among groups. Even if the environment changes, there is no conflict. Based on this principle, this paper analyzes the decision support for the field of artificial intelligence from the perspective of robot formation change.

Keywords: Broad Ant Colony Algorithms; Artificial Intelligence; Genetic Algorithms

1. INTRODUCTION

The ant algorithm studied in this paper is mainly a combination algorithm, which has a good convergence speed. Compared with the traditional algorithm, the generalized ant algorithm has a stronger adaptability and a wider range of application. This paper analyzes its principle, combines it with affine transformation, finds the best path of ant colony life, applies it to the field of robot artificial intelligence, and provides effective decision support for it.

2. ANALYSIS OF THE PRINCIPLE OF GENERALIZED ANT ALGORITHM

2.1 Path Selection

In the generalized ant colony, different ant colony cannot realize the sharing of nest and food. At the same time, after ants complete the optimal path selection, they will release the special pheromone, which is convenient for ants in the same colony to find, and for other ant colonies, it will be repellent.

When the time and scope are clearly set, ants will explore in multiple ant nest and food paths. Where, this process is set to T_{max} , ant colony is K , search time is t_1, \dots, t_k , then T_{max} is the sum of search time. Set $[0, T_{max}]$ as the training time range, forming the whole process of the final ant shortest path exploration.

R for ant colonies, Q for food, different ant colonies to i , the number of paths $m_i, [t_{i-1}, t_i]$ In order to search the time range, the whole process is for the distance between the ant nest and the food, different ant colonies will complete the exploration of multiple routes in a limited time, and ultimately find the shortest path. When the number of path bars is used j , indicates that the path length is d_{ji} , the moment

ist; the intensity of pheromones released by the ant colony on the path within a set time can be obtained C_{pji} , and as the pheromone strength of all paths, the optimal path calculation formula is finally obtained [1].

2.2 Environmental Change Parameters

In different ant colonies, when the environmental parameters change, it will have a certain impact on the behavior of ants, resulting in the change of individual behavior. In this paper, the parameters of environmental change are included. When the parameters change, different pheromones are used to distinguish different ants to explore the best path. By controlling the pheromone updating rules, it can be observed that the optimal path pheromone between the ant colony and the food increases significantly, so as to get the change of ant colony path selection after the change of environmental parameters.

3. ARTIFICIAL INTELLIGENCE DECISION SUPPORT BASED ON BROAD ANT COLONY ALGORITHM

By clarifying the principle of generalized ant colony algorithm, the application of robot formation transformation will be further studied below to achieve an effective analysis of the value of decision-making in the field of artificial intelligence.

Robot formation transformation mainly refers to the specified tasks as the goal, multiple robots form a whole system, complete the formation of the combination, transformation. Extending it to a wide area, such as the military, would yield significant benefits. Therefore, to avoid the conflict of robotate in the process of combination change, we can find relevant reference from the generalized ant colony algorithm, by establishing the connection between the robot in direct and indirect form, strengthening the control of the robot's repulsion in front of the obstacle. With the help of priority strategy, completing the control of the robot's formation transformation control, setting the path of the robot, solving the situation of traditional robot transformation needs to wait, making the robot formation transformation efficiency significantly improved, and the overall formation change more complete [2].

The analysis of the generalized ant colony algorithm, the anti-affine transformation principle into it, assuming that there are 7 robots involved in the formation transformation, with the help of Star Logo, can complete the effective analysis of the robot

simulation formation transformation. According to the simulation transformation definition, the formation transformation of the robot on the line can be obtained by expanding in any two lines. The main method is to select the coordinates of the three robots and find the corresponding post-transformation coordinates to complete the coordinates of the overall robot formation transformation. After determining the respective locations of ants and food, the best path between the two can be further explored using the generalized ant colony algorithm.

In the analysis of Figure 1, the ant colony with number 0 increases the intensity of pheromone in the shortest path finding. At this time, the other path pheromone is 0. After the shortest path of ant colony 0 is defined, ant colony 1 will find the shortest path. (b) Some represent the whole process of ant searching. Among them, the bold part is the final shortest path, the intensity of pheromone in the shortest path is higher, and other path pheromones are also 0. In section (c), the pheromone enhancement paths of ant colonies numbered 0 and 1 are compared. Through the use of this method, numbering and so on, other ant colonies have completed the shortest path search, and the final result is **Figure 1**.

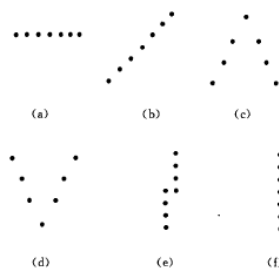


Figure 1. Chart of the formation change seamount of environmental change

Figure 1 Shows the final implementation after the training of formation transformation with six different

environmental change parameters. Among them, (a) part assumes that the environmental change parameter is 1, and the ants are arranged in a "one" shape. In part (b), the environment parameter is set to 2, and the ant finds a new location through the shortest path search, and takes the new location as the ant nest. The change environment parameter is 3, the shortest path changes, and the new location appears again, that is, part (c). By analogy, the final formation transformation is clear. In Figure 2, part (d) ~ (f) is not affected by the collision phenomenon and does not involve the waiting time of the collision, so its transformation speed is significantly improved and the whole process is completed in 72 s. Through the analysis of robot formation arrangement, it can realize its guiding role in the field of artificial intelligence and promote the in-depth development of the field of artificial intelligence.

4.CONCLUSION

In this paper, based on the generalized ant colony algorithm, taking the environmental factors into account, by analyzing the principle of non-conflict when different groups find the path, the robot position judgment is realized based on the research of affine transformation. Furthermore, the best path without collision is obtained, which improves the safety of robot formation transformation and promotes the development of artificial intelligence.

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Research on The Transformation Of 3D Animation in Digital Media Era

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Abstract: From the current situation to analyze, people are in the digital media era, the media industry has appeared new changes. Compared with the previous, there are some new changes in animation. With the help of modern technology, such as 3D animation technology, the presentation form of animation can be changed, so that the expression form of animation is no longer limited to the two-dimensional plane, making the animation more three-dimensional. However, only this technology cannot meet the needs of people for animation in the era of digital media. We need to study this technology, fully show the advantages of digital media, and make 3D animation more high-quality. This article briefly introduces digital media and 3D animation, analyzes the development process of 3D animation, explores the transformation of 3D animation, and puts forward some measures to improve the level of 3D animation reform, hoping to produce more excellent animation works in line with the aesthetic needs of modern people.

Keywords: Digital media; 3D animation; Change; Research

1. INTRODUCTION

With the improvement of computer technology, the emergence of three-dimensional animation has become possible and has been sought after by people. It has changed the inherent form of television, film, game and animation industry. When making 3D animation, in order to show the theme and position of the work and meet the audience's viewing needs, it is not only necessary for the staff to change the original production method, but also need to with the help of 3D animation technology, it can meet the diverse needs of people [1-3]. The emergence of digital media era, can provide support for the further development of 3D animation, from a certain point of view, can make the animation industry of our country develop in a long-term and stable way.

2. DIGITAL MEDIA

When it comes to digital media, people's first reaction is advertising or some videos and pictures. However, in fact, the scope of digital media is relatively broad, video, pictures, advertising, audio and digital can be classified as a form of expression of digital media. In the dissemination of digital media, mainly with the help of the people. In the development of digital media,

the level of digital media is mainly determined by the level of digital technology and information science [4-10]. With the maturity of digital technology and the influence of communication means, digital technology is becoming more and more popular in people's life. For example, in the process of film publicity, it is likely to use online games to promote, so that more people have a certain understanding of the film, attract more viewers to watch, and optimize the use of resources.

3. 3D ANIMATION

3D animation can also be called 3D animation, which is mainly made by means of computer technology and digital media. In the process of animation production, the staff need to simulate the virtual situation in the computer, and carry out modeling, through a series of steps, to show the high-quality 3D animation in line with people's visual aesthetics.

4. THE DEVELOPMENT OF FOREIGN 3D ANIMATION

From the overall development of three-dimensional animation to analyze, foreign three-dimensional animation technology development time is relatively long, and in the 1980s of the last world has been relatively rapid development, making the three-dimensional animation industry has become a new film and television industry, by people's attention, some pictures and content that can not be presented in real life can be improved with the help of three-dimensional technology Line rendering. At present, foreign 3D technology has been more mature [2].

5. PROBLEMS IN THE DEVELOPMENT OF DOMESTIC 3D ANIMATION

Although China's 3D animation technology has been developed to a certain extent, compared with foreign countries, there are still some differences, which need continuous development. In order to obtain more profits in the process of the development of 3D animation industry, more enterprises join in the application of 3D animation production and 3D animation technology. However, there are still some problems in the development of 3D animation. Firstly, there are some problems in the story plot in the process of making 3D animation. Firstly, there is no distinct theme in the process of making 3D animation. Second, the plot is old-fashioned and unattractive. Third, in the process of 3D animation production, the character image is not clear, which leads to the audience's

acceptance of 3D animation is relatively low. If 3D animation wants to be developed, it needs a good script as support [3]. However, China's animation industry does not realize the importance of the script, will be more energy applied to the training of talents, that as long as there are talents as support, the quality of works can be improved. However, in fact, there is no script, no matter how many talents are just in vain. If we want to improve the level of 3D animation, we must have professional comprehensive talents who combine technology and art. However, the number of professionals in this field in China is relatively small. Second, there are some problems in the process of 3D animation production. Some of the staff who apply 3D animation technology to make animation are for profit, some are because of personal preference and have no clear goal. And in the production, although most people want to complete the three-dimensional animation production, but due to the influence of capital and technology and other factors, can not complete this demand. In order to obtain more economic benefits, some enterprises even play some low-quality animation works to the audience, resulting in the audience's evaluation of 3D animation is relatively low and the recognition is not high. Third, there are some problems in the process of training talents. Three dimensional animation is a new type of content, and colleges and universities in China do not fully understand it. Although this major has been set up, the number of professional teachers is small, which leads to the cultivation of students can not reach the expected goal, and the number of talents in line with the market demand is relatively small [4]. Fourth, China's animation enterprises in the process of animation production in the original and processing of these two positioning. Although there are a lot of animation enterprises in China, there are very few enterprises that can create original animation. Most of the enterprises only process animation enterprises to create some less benefits, which is not conducive to the long-term and stable development of animation industry. Fifthly, the broadcasting of animation works requires the price approved by the state. However, due to the high cost of 3D animation, the purchase cost is relatively high, and there are few TV media to purchase.

6. TRANSFORMATION OF 3D ANIMATION

6.1 Technology Of Innovation And Transformation For Rendering

In the 1980s, three-dimensional animation appeared in China and got a certain development. More film companies joined in the production of 3D animation, which made 3D animation technology get a certain development. The original rendering technology, after innovation and reform, can simulate the lighting, make the pattern more realistic, and make people feel as if they are in the scene. The emergence and use of renderers, improve the efficiency of rendering work,

so that the false can be confused with the true. The invention and use of network rendering reduce the time needed for rendering work [5].

6.2 Innovate and Transform the Technology Of Geometric Modeling

There are many differences between 3D animation and 2D animation, among which the most obvious feature is that 3D animation can present space with the help of pictures, while 2D animation is only a plane image. Descartes is the first to analyze the three-dimensional space, which shows the three-dimensional space with the help of X, y, Z three-axis, which makes the three-dimensional graphics clearer and clearer, and can solve the problems of pilot movement, and provide support for the emergence and development of geometric modeling. From the overall point of view, the emergence and development of geometric modeling processing technology provides support for the transformation of 3D animation.

6.3 Innovate And Transform The Technology Of Animation Processing

In the animation production, the staff need to dynamically present the plane characters to show different actions. Before, the staff need to operate each picture. The work is very difficult and the task is heavy. It requires the staff's experience and high concentration to carry out this work [6]. In western countries, in the process of animation production, the staff can collect and analyze the data with the help of motion capture device. The staff only need to modify the data, which can make the role more natural and vivid to show the action and fit people's real life. In addition, with the help of motion capture device, the workload of staff can be reduced and the work of staff can be more efficient.

6.4 Innovate And Change The Technology Of Software Processing

Before the emergence and application of software with commercial value, people in the process of animation video or film production, want to make it show special effect, we must first research and development of software, the cost is relatively high, and with the wide application of software with commercial value, the production cost of animation video and animated film will also be reduced, the screen More accurate, so that the film and television industry has been more rapid development. For example, digital fusion / Maya fusion, a special effect software, has produced movies such as "little brother of elves" and "Dr. Oolong". These films have a good broadcasting effect and are welcomed by people. However, there are still some problems in the process of applying software to deal with animation, which requires the staff to improve their own level and provide support for the transformation of 3D animation [7].

7. MEASURES TO IMPROVE THE LEVEL OF 3D ANIMATION REFORM

7.1 Carry Forward Excellent Historical Culture

A good play can show a good story. For domestic and foreign countries, 3D animation technology is the same from a certain angle. China has a long history, there are many excellent cultural stories, which can provide sufficient themes and ideas for 3D animation production. Therefore, in the process of making 3D animation in China, we should learn from the successful experience of foreign countries, analyze the successful experience, and based on the Chinese characteristics, integrate with it, and show the characteristics of China itself. It describes some fresh story themes and shows a world that people have never touched. Therefore, in the process of animation production, we should collect some folk stories, such as legends and myths, and adjust them to make the theme more vivid. With the help of three-dimensional animation technology, people can have a completely different world experience, so that animation can meet people's needs and improve the quality of animation.

7.2 Strengthen Publicity

A good work, also need to have a strong degree of attention. In order to make the 3D animation industry develop, we must strengthen the publicity. With the help of the government's policies and the publicity of various media, let the end people realize the advantages of 3D animation technology, and make the 3D animation technology have a broader market [8]. This can not only make people more willing to accept the performance of 3D animation, but also improve the level of 3D animation technology, and promote the overall development of 3D animation industry.

7.3 Enhance The Professional Ability Of Talents

If we want to make 3D animation technology with Chinese characteristics, we need to have enough talents as support. With the development and use of 3D animation technology, more and more people join the 3D animation industry. However, compared with foreign countries, there are still some differences, and the number of talents is relatively small. With the help of talent training institutions, the comprehensive strength of talents can be improved, and a professional talent team can be established to provide support for the development of the industry. The relevant departments should organize talents to learn, so that they can master more advanced knowledge and technology, and contact with the domestic reality, so as to make the works more Chinese characteristics.

7.4 Improve The Teaching Level Of Animation Major In Colleges And Universities

With the widespread application of 3D animation technology, more and more people are interested in 3D animation. A large number of students join in the study of 3D animation technology, and hope to provide support for the development of this industry. In order to adapt to this new change, more and more universities have set up animation major, but most colleges and universities have some problems in animation teaching, which can be summarized as

follows: first, in the process of teaching, too much attention is paid to the number of students, ignoring the quality of teaching. In the process of teaching, there are some differences in the level of teachers, there is not enough software and hardware equipment as support [9]. Second, before students learn, the basis of animation is not the same. In the process of teaching, teachers do not have a comprehensive and systematic consideration. Students can only learn some basic content through learning. Their innovation ability and comprehensive quality are relatively low. After completing the study, students also do not have enough ability to join in animation production, which leads to the consumption of time. There is no effect of space and cost, which is not conducive to the further development of 3D animation in China. Therefore, colleges and universities should realize the importance of animation teaching and improve the teaching level. Make the teaching more high-quality, efficient, for students to train, so that students' innovation ability to be improved, comprehensive development, have enough ability to join in the animation production.

7.5 Create a Good Market Atmosphere

According to the development of animation in China, it can be found that a good script does not mean that the animation production can be successful. It needs to be supported by a sound market. However, China's 3D animation market is in the development stage, there are many problems, which is not conducive to the long-term and stable development of 3D animation industry. Therefore, the relevant departments should take measures to create a good market atmosphere: first, we should pay attention to financing, strengthen publicity, so that more social forces can join the development of 3D animation and provide sufficient funds for it. Second, 3D animation system can be further improved to support the development of 3D animation industry.

8. CONCLUSION

According to the above analysis, in the era of digital media, China's three-dimensional animation industry is in the initial stage of development. In the process of reform, China's animation industry has been developed to a certain extent. Although compared with developed countries, the level of 3D animation has certain differences, and the production of 3D animation has low capital and technical level needs to be further improved and so on. However, in recent years, with the advent of the digital media era, the relevant departments of the state pay full attention to it, and have carried out innovation and Reform for the existing technology, so that the level of 3D animation in China has been improved. I believe that in the near future, China will have its own three-dimensional animation brand with its own characteristics.

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Computer Network Security and Countermeasures

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Abstract: With the rapid development of science and technology, the computer has entered people's daily life, affecting the social situation, we have to say that the computer has a great impact on the society, and even affects the economic development. However, interest is a double-edged sword, which brings convenience to people, but also brings serious network security problems. Therefore, it also affects the economic development and social stability. Therefore, people should pay attention to computer network security and meet the challenges of the new century. Combined with the importance of computer network security maintenance, this paper expounds the influencing factors of security risks, and formulates several methods of security maintenance measures, hoping that this brief introduction can provide some help for computer network security and countermeasures.

Keywords: Computer network; Security; Common problems; Countermeasure analysis

1. INTRODUCTION

With the development of computer, it covers every corner of life, and many computer related industries need to bear great risks, such as stocks, government information, securities, e-banking, large enterprise information, personal information, etc., and even some special administrative parts will involve state secrets. Some foreign countries will covet China's secrets, and some hackers will be responsible for them the interests of the use of improper means to attack the computer firewall [1]. Some countries will face threats. If the state secrets are really obtained by lawless elements, the consequences will be unimaginable, so network security is crucial. To sum up, in the Internet era, the network needs to build a high-level security maintenance system, and improve the crisis awareness of relevant personnel. On this basis, it is also necessary to cultivate computer network security technology [2].

2. THE IMPORTANCE OF COMPUTER NETWORK SECURITY MAINTENANCE

The maintenance of computer network security is very important. It is necessary to maintain all kinds of data in the computer. It is necessary to use the management and control means of network to protect it, so as to ensure that the network is in a safe state, so that the system can run normally. Generally, computer network security can be divided into physical security and logical security. Physical security refers to the

equipment and hardware in the operation of the computer, while logical security refers to the data in the equipment and hardware. Here, we can macroscopically understand that it is to use various technologies to protect the data in the computer and provide backstage support for the daily normal [3].

3. INFLUENCING FACTORS OF COMPUTER NETWORK SECURITY HIDDEN DANGER

3.1 Network Intrusion

At present, with the continuous improvement of computer technology, a variety of malicious viruses have also become diversified. In the past, the virus attacks the computer through the system vulnerability, but now the new virus does not need to look for the vulnerability, and can spread directly through a small vulnerability, gradually covering every corner, making the computer unable to use normally. It is precisely because of this super strong ability to spread, a software is attacked, it will quickly expand to the various software. Generally, this kind of virus will not take the initiative to attack the computer, because users browse unprotected web pages or unsafe software.

3.2 Software Vulnerabilities

In the computer system, software is an essential part of it, and it is also the basis to ensure the normal use of users. However, software is not absolutely safe. Even the software developed by some mature and well-established large enterprises will also have software vulnerabilities, which can not guarantee its security. The loophole is a time bomb that affects computer security. If a malicious hacker wants to invade the system, it will cause data damage and loss. Among them, the most common method is protocol vulnerability attack [4].

3.3 Wrong Use

Although the computer has been widely used in people's daily life, not all users will use the computer safely, and the wrong use method is one of the ways to increase the virus infection. When the user uses the computer wrongly, the lawless elements will attack the system through the current loopholes. Moreover, the current computer will have a password system, many users will use their own password or abbreviation to replace the calculation and password, although it is easier to remember, but there will be security risks.

3.4 Malicious Damage

The development of computer is due to the progress of science and technology, but also led to the development of economy, so that enterprises in the

market competition is more intense, the competition in the same industry will be more obvious, and some enterprises in order to defeat competitors, invade each other's computers. If the invasion is successful, it will lead to the destruction of the opponent's computer data, but this means is illegal, and it will also bring legal problems for their own enterprises.

4. COMPUTER NETWORK SECURITY MAINTENANCE MEASURES

4.1 Construction Of Virus Protection System

If we want to improve the security of computer network, we should formulate the corresponding virus protection system to prevent the invasion of malicious viruses. In the past cases, the construction of virus protection system can improve the virus invasion to a certain extent, but this is only applicable in the ordinary working environment. If you want to build a higher level of virus protection system, you also need to use: firewalls and security guards and other software, the program settings can be through the background of the security risks of software to kill or intercept the virus.

4.2 Pay Attention To Data Backup And Recovery

Because the computer records data every day, and the workload is complex and huge, so the staff should always pay attention to the network security risks. In order to solve the data loss, the data can be backed up in real time to avoid the computer from being attacked by external factors and causing data damage. In addition, backup data can help users reduce capital consumption. But in the actual operation, we should pay attention not to part of all the data, you can choose the important part of the backup, because the data backup also needs space, in order to avoid unnecessary space waste, you can choose to back up the important data in the computer, of course, the user should also make a backup record, which is clear when using.

4.3 Improve Computer Security Management System

Want the computer network security operation, it is necessary to carry on the scientific arrangement to the

security management system, completes the corresponding security management work. The development of computer is relatively fast, so the corresponding management should be updated. First of all, we can establish a special safety management organization, and then arrange the technical personnel to join the organization, regularly maintain and inspect the system, and improve the sense of responsibility of the management personnel.

5. CONCLUSION

To sum up, people's lives have been inseparable from computer technology, but the benefits are a double-edged sword, bringing convenience to people, but also involving a lot of disadvantages. In the face of computer network security accidents, we should take preventive measures. We can use the three technologies mentioned above to deal with hacker attacks. In addition, users should not browse or download without security Full authentication of web pages, strengthen the awareness of network security can avoid virus attacks. In addition, people's work now involves the computer, so in each person's computer to set a good password, avoid using a simple password, because it cannot achieve the role of security.

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The Influence of Architectural Mechanics on Architectural Modeling

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Abstract: With the continuous development of modern society, as well as the accelerating process of urbanization, in this process, the construction field plays a key role, at the same time, the shape and comfort of the building itself also affect the level of people's daily life to a great extent. Therefore, in the construction of construction projects, relevant units and personnel need to combine the traditional building construction According to the characteristics of construction, we should strengthen the artistic development of architectural modeling, and combine with the content of architectural mechanics, further optimize and improve the modeling of the building itself, so as to promote the improvement of people's daily life and social operation level. The following analysis explores the impact of architectural mechanics on architectural modeling.

Keywords: Architectural mechanics; Architectural modeling; Influence

1. THE SPECIFIC CONCEPT AND ESSENCE OF ARCHITECTURE

1.1 Specific Concept of Architecture

Usually, the so-called building mainly refers to the relevant units and personnel mix and match a large number of different types and functions of material materials, combined with space, shape, color and other factors, in the use of certain technology and equipment, in order to form a structure, and the object will change with the loss of time, which has a greater impact on its own quality and service life For example, shopping malls, hospitals, schools, residential areas and other aspects belong to the type of building, and according to the policy and system of relevant departments, combined with the performance and function of the building itself, so as to integrate the corresponding elements, so as to promote the healthy development of the building itself [1].

1.2 The Specific Nature Of Architecture

1.2.1 Building Technology

At present, in the construction of construction projects, the level of technology used by relevant units and personnel can greatly affect the quality and functionality of the building itself. Through the investigation and analysis of modern building technology, it is found that the so-called construction technology is mainly composed of engineering design, construction planning and practical technology, and then the architectural modeling and construction are

affected The overall performance and role of the impact.

1.2.2 Architectural Art

At the same time, in the process of modern architectural engineering design and construction, architectural art also occupies the key core configuration, and has a great impact on the appearance form, building scale, appearance color and overall style of the building itself. Therefore, the relevant units and personnel need to strengthen the application of architectural art and other elements in the design and construction of buildings, so as to optimize On the other hand, it can satisfy the spiritual needs of building users.

1.2.3 Building Function

As we all know, buildings are mainly used to meet the requirements of people's work, life and living. With the improvement of people's daily living standards, the function of the building itself also needs to be optimized. In order to achieve this goal, construction units and personnel need to strengthen their understanding of the building itself, and combine with the policies and systems of relevant departments And the needs of building users, comply with the development needs of modern society, at the same time, according to the user's own aesthetic requirements, strengthen the application of modern technology and equipment, ensure that the internal function of the building can meet the needs of a large number of users in the building to the greatest extent, and lay a solid foundation for the healthy development of modern architecture in China.

2. THE CONCRETE EXPRESSION ELEMENTS OF MODERN ARCHITECTURAL MODELING

2.1 Material Texture

Usually, in the process of design and construction of modern buildings, compared with the shape and color of buildings, the texture of construction materials can be actually detected and measured. At the same time, the quality and level of the building itself can be reflected by contacting with the body; and the construction personnel can reasonably choose the most reasonable construction according to the performance and characteristics of the building itself Materials, to ensure the quality and use level of the building itself.

2.2 Building Shape

At the same time, when people observe a certain building, the shape of the building itself has a great

impact on people's first impression. Therefore, when designing and constructing the construction project, the relevant units and personnel first need to deeply consider and explore the shape of the building, and combine the characteristics and performance of the building itself, with the help of modern technology and equipment, so as to design A more scientific and reasonable design and construction scheme is proposed to ensure that it can attract more people's attention and promote the healthy development of China's modern architecture field [2].

2.3 Architectural Color

In addition, color elements also occupy a very important position in the process of architectural design and construction. Usually, through the combination of different colors, people's own emotions can be fully expressed, so as to improve the efficiency of emotion or information transmission; while in the modern architectural engineering design and construction, by strengthening the application of architectural color, it can be fully displayed The information of the building itself, and promote people to have a more convenient understanding of the building.

3. THE INFLUENCE OF ARCHITECTURAL MECHANICS ON ARCHITECTURAL MODELING

3.1 Embody The Spiritual And Cultural Connotation Of Architectural Modeling With The Help Of Architectural Mechanics

The research shows that architectural mechanics has great practicability in practical application, which can meet the needs of people's daily life and work process, and guarantee the quality and service life of the building itself. By strengthening the application of architectural mechanics, it can effectively improve the level of the overall structure of the building, and at the same time, reflect people's spiritual culture and connotation, and lay a solid foundation for the overall operation and development of the construction industry.

3.2 Architectural Mechanics And Architectural Modeling Are Opposite To Each Other

At present, although designers can design high-level and high-quality construction scheme, this process needs corresponding construction technology matching, otherwise, it will affect the quality and stability of the building as a whole; however, due to the opposite characteristics between architectural mechanics and architectural modeling, quite a number of modeling can not be achieved in practical work This will affect the improvement of the artistic level and value of the building itself, and on the other hand, affect the overall quality and service life of the building.

3.3 Architectural Mechanics And Architectural Modeling Are Unified

At the same time, there are also characteristics of mutual unity between architectural mechanics and modeling, which to a large extent ensures the integrity of architectural modeling, and improves the aesthetic characteristics of the building itself. In practical work, relevant units and personnel need to strictly abide by the policies and systems of relevant departments to avoid mistakes in the design process, so as to improve the overall progress of the construction industry And development to provide the basis and guarantee.

3.4 Interaction Between Architectural Mechanics And Architectural Modeling

In addition, in the modern architectural design and construction, there will be strong interaction between architectural mechanics and architectural modeling. In this process, relevant personnel first need to fully understand the building structure, and combined with the characteristics of concrete and steel structure, to avoid the occurrence of stress concentration, so as to ensure the overall safety of the construction project [3].

4. CONCLUSION

To sum up, with the continuous improvement of people's living standards, the construction industry has been greatly developed, and has a great impact on people's daily work and life and social operation. However, in part of the building design and construction, due to the influence of traditional concepts and other factors, there are big problems in the aspects of building mechanics and modeling, which cannot be effectively combined In order to solve these problems, relevant units and personnel need to strengthen the understanding of architectural mechanics and modeling, change their own ideas, and combine with the policies and systems of relevant departments to strengthen the safety of architectural design and construction, so as to promote the further development of China's construction industry and society as a whole.

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Discussion on Clean Production Technology and Application in Coal Chemical Enterprises

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Abstract: With the continuous development of China's industry, coal resources occupy an extremely important position, and have a great impact on modern industrial production and social operation. However, in the past, when coal resources were used in industrial production process, due to the lack of corresponding clean technology, the production process would cause a lot of pollution factors, which would cause social and ecological environment and other aspects will cause great pollution damage; therefore, relevant units and personnel need to strengthen the research and development and application of clean coal production technology, reduce the pollution caused by the application of coal resources, and lay the foundation for the healthy development of modern society as a whole. The following mainly analyzes and explores the cleaner production technology in modern coal chemical enterprises.

Keywords: Coal chemical enterprise; Clean production; Technology application

1. SPECIFIC CONCEPT OF COAL CHEMICAL INDUSTRY

Coal resources occupy a key position in the process of China's development. A large number of investigations show that in the overall energy consumption in China, the utilization of coal resources accounts for about 70%, and the so-called coal chemical industry mainly refers to the treatment of coal resources by means of chemical methods, so as to achieve more efficient utilization of coal resources. Generally speaking, modern coal is used The process of industrial production and processing is mainly composed of coking, liquefaction and gasification; the management personnel of relevant units need to scientifically select the processing method to deal with coal resources, so as to improve the utilization rate of coal resources to the greatest extent, and lay a good foundation for the healthy development of coal enterprises[1].

2. PRACTICAL APPLICATION OF CLEANER PRODUCTION TECHNOLOGY IN COAL CHEMICAL ENTERPRISES

2.1 Applied To Coal Processing And Production

At present, coal chemical enterprises in the clean treatment of coal resources, due to the lack of scientific and effective treatment methods, resulting in a large number of waste gas and waste water discharged to the outside world, which has an impact on the society and

the natural environment; in order to change this situation, relevant units and personnel can strengthen the application of cleaner production technology in the technology, at the same time, enterprise managers need to The introduction of a large number of advanced technology and equipment, combined with clean production technology, efficient treatment of coal resources, for the overall healthy development of China's coal industry.

2.2 It Is Applied To Clean Coal Washing

Research shows that after mining, coal resources will contain about 30% - 40% of total sulfur and 50% - 80% of ash. If these substances are not removed, they will greatly affect the production and application of coal resources, and affect the daily production of related enterprises. Therefore, relevant units and personnel need to strengthen the application of cleaner production technology, and With the help of its internal clean washing function, a large number of impurities in coal resources are removed, the accuracy of coal resources is improved, the cost of coal resources transportation is reduced, and then the economic benefits of coal chemical enterprises are improved.

3. COMMON PROBLEMS IN APPLICATION OF CLEANER PRODUCTION TECHNOLOGY IN MODERN COAL CHEMICAL ENTERPRISES

3.1 Insufficient Level Of Energy Conservation And Emission Reduction

Under normal circumstances, the application of cleaner production technology in modern coal chemical enterprises is mainly to reduce energy consumption and reduce the emission of pollutants. However, in some enterprises, due to the traditional ideas of managers themselves, they lack sufficient understanding and attention to the technology. In the daily production process, traditional production technology and equipment are still used, which leads to the related functions At the same time, the energy-saving and emission reduction capacity of the enterprise itself is insufficient, and even affects the economic benefits and operation development of the enterprise itself.

3.2 Lack Of Effective Publicity And Promotion

In the daily operation process of modern coal chemical enterprises, in order to strengthen the application of cleaner production technology, relevant enterprises and personnel need to strengthen the publicity and promotion work, so that more personnel can realize the importance of the technology. However, in some

enterprises, due to the influence of traditional concepts and other factors, enterprise managers and employees ignore the technology. As a result, the daily operation of the enterprise lacks sufficient publicity, training and education, and the intensity of daily publicity is small, which can not form effective publicity and promotion, thus affecting the improvement of the application level of cleaner production technology in modern coal chemical enterprises [2].

3.3 The Professional Level of Relevant Personnel Is Insufficient

As we all know, in the process of any work, the application of high-quality professionals can effectively improve the level of work, and find and deal with the problems that may appear in the relevant work in time, which greatly ensures the overall benefits of the relevant work. However, in some modern coal chemical enterprises, due to the lack of attention to the technology by the enterprise's internal personnel, the guidance of as a result, there is a lack of professional departments and personnel of cleaner production technology within the enterprise, which greatly increases the probability of enterprise operation risk problems, and then affects the overall operation and development of the coal industry.

4. SPECIFIC MEASURES TO STRENGTHEN THE APPLICATION OF CLEANER PRODUCTION TECHNOLOGY IN COAL CHEMICAL ENTERPRISES

4.1 Strengthen The Updating Of Equipment

In the current period, in order to strengthen the application of cleaner production technology in coal chemical enterprises, relevant enterprises and personnel first need to timely update the production equipment, purchase equipment strictly according to the needs of clean production of coal, and optimize and innovate the relevant production process, so as to ensure that the clean production of coal resources can be completed more scientifically and efficiently, and the traditional production can be avoided at the same time. The emergence of production and processing problems ensures the utilization rate of relevant energy and the overall economic benefits of the enterprise, and lays the foundation for the overall healthy development of China's coal industry.

4.2 Strengthen The Improvement Of Internal Management Level

Generally, in the process of operation of some coal enterprises, due to the influence of traditional concepts and other factors, the internal management level of enterprises is low, which affects the operation of enterprises and the quality of clean production of coal resources, and even causes a large number of industrial pollution phenomenon. To solve these problems, at the same time, strengthen the application of cleaner production technology in coal chemical enterprises. Industry managers need to change their own ideas,

formulate a more scientific and perfect management system, and clearly define their own work responsibilities, so as to achieve energy conservation and emission reduction, and ensure the safety of coal production process; at the same time, enterprise managers also need to reasonably control the daily production schedule to avoid excessive pursuit of production efficiency and economic benefits. As a result, the equipment has been running for a long time and the overall work of clean production of coal resources has been affected.

4.3 Strengthen The r & d And Innovation Of High And New Technology

In addition to the above measures, in the operation of modern coal chemical enterprises, in order to strengthen the application of cleaner production technology, relevant enterprises also need to allocate a large number of researchers to carry out research and development and innovation of high and new technologies, so as to maximize the efficiency of clean production of coal resources, reduce the probability of pollution phenomenon, and on the other hand, improve the efficiency of clean production of coal resources. The technology level is optimized and improved to provide sufficient technical support for the overall progress and development of the enterprise [3].

5. CONCLUSION

To sum up, with the passage of time, coal resources occupy an extremely important position in China's industrial production and social operation process, and will also affect people's daily life; however, due to the traditional coal resources in the production and processing process will cause a lot of pollution factors, greatly affecting the health of the ecological environment, therefore, relevant enterprises and personnel need to strengthen the clearance. The application of cleaner production technology, and strengthen publicity and promotion work, so that more people can realize the importance of cleaner production technology for coal enterprises and industry, and then promote the further development of China's coal industry and society as a whole.

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Analysis on The Problems and Countermeasures of Educational Funds Statistics

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Abstract: With the continuous development of China's education industry, China's relevant departments pay more and more attention to education, in which a large amount of funds have been invested. In this process, the statistical work of education funds plays a very important role. However, from the actual situation, there are many problems to be faced with in carrying out education funds statistics, which to a certain extent hinders the further development of the education industry. This paper analyzes the problems in the statistical work of education funds, and puts forward relevant countermeasures, hoping to make education funds more scientific and reasonable use, and promote the long-term and stable development of China's education industry.

Keywords: Education funds statistics; Problems; Analysis; Countermeasures; Research

1. INTRODUCTION

The statistical work of educational funds is the key content of educational work, which is essential for the further development of education. With the development of education in China, the statistical work of education funds becomes more and more critical, which can determine whether the use of funds is scientific and reasonable, and whether teaching funds can play a maximum role. However, there are still some problems in the statistical work of educational funds, which must be solved by taking measures.

2. EDUCATION FUNDS STATISTICS

2.1 The Importance Of Educational Expenditure Statistics Is Not Recognized

From the analysis of the current situation, the relevant departments of our country have not realized the importance of the statistical work of educational funds, and their understanding is one-sided. Some institutions believe that the education funding statistics work only classifies, integrates and summarizes the relevant data, and does not carry out in strict accordance with the relevant requirements, and the data filling is not carried out according to the requirements. Due to the lack of investment in education funds in some regions, other investments related to education funds are also included in the education funds; in order to achieve the teaching indicators, some colleges and universities falsify the collected data and make up the values

randomly, which leads to the inaccurate statistical work of education funds, which is not conducive to the smooth implementation of education policies [1].

2.2 There Are Differences In Statistical Methods

Due to the differences in the way of statistical management of education funds in different regions, there is no unified index for the management, and there is no strict record of income and expenditure according to the requirements, resulting in the accuracy of statistical data cannot be guaranteed. For example, it is not conducive to the smooth development of education funds statistics to include the income of school fees and accommodation fees in the investment of education funds, and to include the fees for training as tuition fees. Even some institutions, in order to prevent public funds from exceeding the budget, arbitrarily transfer funds to other projects, resulting in the original education funds into other expenditures.

2.3 There Is Less Connection Between Statistics And Accounting Work

Because the management level is relatively low, the compatibility of accounting software and statistical software is relatively low, which, from a certain point of view, increases the difficulty of statistical work, resulting in its accuracy rate can not be guaranteed, and the final statistical data and accounting data are quite different. If the accounting work and statistical work are carried out by the same person, they can directly collect the data obtained by the accounting work. However, if the two tasks are carried out by different persons in charge, the accounting staff should collect and search the data again and carry out repeated work, which is not conducive to the scientific and reasonable use of resources [2].

2.4 The Level Of Statistical Professionals Needs To Be Further Improved

Because the statistical work is not taken seriously, most of the statistical workers are not professional in statistical work, but carry out part-time jobs. They just have a simple understanding of statistical work and directly carry out a series of work. This leads to their lack of understanding of different indicators of statistical work, less work experience, accounting staff's professional ability is relatively low, work efficiency can not be improved, can not effectively use the relevant information, can not become the reference basis for relevant work decisions.

3. COUNTERMEASURES OF EDUCATION FUNDS STATISTICS

3.1 Establish a Sound Organization

The establishment of a perfect organization is an effective way to carry out the statistical work of educational funds and improve its efficiency. Therefore, the relevant departments should recognize the importance of education funds statistics, strengthen the development of statistical norms, and provide guidance for related business. The relevant departments should recruit enough accounting staff and statistical staff, and set up special institutions to carry out statistical work. This work should be carried out as a key content, and the investment in software and hardware should be increased, and advanced facilities and equipment should be used to make the statistical work more efficient and high-quality.

3.2 Unified Project Fund Classification

Before carrying out the statistical work of educational funds, the relevant departments should train the professionals, make clear the source of relevant data, the way to use the statistics, the requirements to be followed, and the scope included. This is an important condition for the smooth development of education funds statistics. The accounting staff should be clear about the content of the fund items, avoid the situation of random classification due to the lack of clear fund items by the statistical staff, and strictly supervise and manage the expenses related to the three public affairs, ensure that the use of funds is classified according to the requirements, and ensure that the statistical work of education funds is carried out according to the regulations, with a relatively high degree of accuracy [3].

3.3 Linking Accounting With Statistics

The data used in statistical work mainly comes from accounting calculation. Therefore, in the teaching process of accounting work, we should consider the actual needs of Education Fund statistics, ensure that it can carry out statistics from a systematic and comprehensive perspective, and improve the accuracy of statistics. In addition, statistical indicators and accounting indicators should be linked to make accounting software compatible with statistical software and improve the efficiency of statistical work. This can reduce the time it takes to collect statistics. It is better to choose the personnel who carry out Education Fund statistics among accounting staff, which can make more efficient use of human resources and time, and reduce the probability of problems.

3.4 Organize Accounting And Statistics Staff To Study Education funds statistics work for the development of

education industry has a very important role, for the professional requirements of statisticians is relatively high. It is necessary to improve the level of statistical workers, so that the statistical work can be completed more efficiently. This requires the organization of statistical and accounting staff to learn, to ensure that they have a certain understanding of the basic accounting knowledge and the new accounting system, and to provide the accounting and statistical staff with communication and communication channels, to ensure that they have a certain ability to solve the problems in the actual work process. Improve their analytical ability, establish a professional talent team, improve the accuracy of education funds statistics, and make relevant decisions more scientific and reasonable [4].

4. CONCLUSION

According to the above analysis, the statistical work of education funds plays a very important role in the smooth development of education, so we must pay attention to it. From the current situation to analyze, we can analyze that there are still many problems in the statistical work of education funds, which is not conducive to providing sufficient funds for the development of teaching work. Therefore, we must take measures to solve these problems, so that the education funds can provide support for the long-term and stable development of the education industry.

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Application of Mobile Internet Technology in Expressway Intelligent Transportation Service

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Abstract: With the continuous progress and development of Internet technology, it is more and more important in modern people's life. Mobile Internet technology is widely used in people's life, and plays an increasingly important role in the highway intelligent transportation service. This paper briefly analyzes the important significance of mobile Internet technology to traffic information service, introduces the design and establishment of expressway traffic service system, and expounds the specific application of a series of mobile Internet technology in Expressway intelligent transportation service.

Keywords: Mobile Internet technology; Expressway; Intelligent transportation service

1. INTRODUCTION

In recent years, China's rapid economic development, highway as infrastructure, and people's lives are closely related. But with the rapid development of society and people's fast-paced life, highway traffic service has been unable to meet the needs of people's life. The emergence of mobile Internet technology makes highway transportation service realize intelligent transportation service, improve people's travel quality and travel satisfaction, and provide great convenience for people's life and travel.

2. THE SIGNIFICANCE OF MOBILE INTERNET TECHNOLOGY TO TRAFFIC INFORMATION SERVICE

The emergence of mobile Internet technology has broken the traditional traffic information service, mainly in several aspects. First of all, the traditional transportation information provider is mainly the government, and the public is the party who receives the traffic information and is also the demander. However, the emergence of mobile Internet technology has changed this situation. While the government provides public transport information, the public can also provide traffic information, which not only becomes the demander of traffic information, but also the provider. Secondly, the traditional traffic information service mainly receives the public through television, transportation departments and websites, with limited access. However, the mobile Internet has broadened the receiving channel, making the traffic information not only more accurate, but also more timely; finally, the traditional traffic information service has limitations, providing the public with

unified traffic service information, but with the integration of mobile Internet technology, users can obtain the traffic information according to their own needs, and the mobile Internet will also be able to use it. The information positioning of users can be promoted accurately. In short, the application of mobile Internet technology in traffic information service not only meets people's diversified needs, but also meets people's differences, which is of great significance for traffic information service [1].

3. DESIGN AND ESTABLISHMENT OF EXPRESSWAY INTELLIGENT TRANSPORTATION SERVICE SYSTEM

3.1 System Framework

The intelligent transportation service system of Expressway mainly consists of three parts: traffic information collection system, traffic information processing system and traffic information release system. Traffic information collection system mainly includes static traffic information and dynamic information collection. Traffic information processing system through the collection of traffic information, and then processing and analysis, data can be unified management. The database system mainly contains basic information database and business data, which is very important. The main source of basic information database is the collection of toll station and service station.

3.2 Key Points Of The Project

Public information service platform of intelligent transportation is very important, most of the information contained in it involves the privacy of users. The public information service platform of intelligent transportation is mainly carried out with the support of public security. Through the scientific application of mobile Internet technology, the public security database is connected with the traffic database. Therefore, when the public security database is updated, the database of the service platform will be updated accordingly.

3.2 Core Technology

The core technology mainly includes five parts: information service technology, workflow technology and LBS technology. Information service technology has broken the limitations of the previous information, so that traffic information can be obtained more quickly by users. The application of LBS technology makes the location of traffic information more

accurate. In the core technology, another important technology is the safety certification service technology, which is also very important, mainly to ensure that the information can be exchanged effectively and safely when users use the information. In short, the core technology is very important, is an important content of intelligent transportation service of expressway, and plays an irreplaceable role in the intelligent transportation service of expressway.

4. SPECIFIC APPLICATION OF EXPRESSWAY INTELLIGENT TRANSPORTATION SERVICE

4.1 Wechat Application

With the wide acceptance of wechat in recent years, intelligent transportation service is applied to wechat, which brings great convenience to people's life. People can query the information they need without leaving home, and can push the relevant weather information or traffic information for people according to their current specific location. For example, in the event of a traffic accident, you can save and improve the photos of the scene of the traffic accident, and then make a telephone appointment to provide self-service services. Users can leave the scene after completing the corresponding processing, and the relevant departments can effectively handle it according to the specific information provided by the information platform. In this way, many unnecessary troubles are avoided and time is saved for people.

4.2 Application Of App

With the development of science and technology in recent years, the function of app is more perfect. Users can set and log in their own information directly by intelligent devices. Users can publish effective information through app. After publishing, app will check the accuracy of information according to the actual situation. When ensuring the accuracy of information, it will be released to app application for reference and query, providing convenience for other users. If the information verification error lacks authenticity, the user will be warned and relevant treatment will be given. In addition, the navigation function of APP has been widely praised for the convenience of people's travel. The navigation function of app can not only plan the route, but also has powerful navigation function. It can master the

road information in real time. When the road is congested or blocked, it will remind the user, which is the guarantee of people's travel and plays an important role in the smooth driving of vehicles [2].

4.3 Application Of Microblog And Web Page

When users log in, app, wechat and microblog can communicate with each other, which greatly facilitates the use of users. When logging in to microblog, users can directly log in through authorized wechat, without logging in again, and then use or publish information by logging in to microblog. The application of web page is to facilitate the access of information, editing and auditing. The web page can also be used for identity authentication. When using the app, if the user enters an error five times in a row, the system will default that the password will be locked, and the user needs to send a verification code to re verify according to the instructions to help the user confirm the identity.

5. CONCLUSION

To sum up, the application of mobile Internet technology in Expressway intelligent transportation service is essential. With the development of the times and the progress of science and technology, people's demand is more and more diversified, and the fast pace of life makes people's demand for intelligent transportation service higher and higher. Therefore, it is necessary to constantly improve and update the intelligent transportation service of Expressway to conform to the trend of social development and meet the needs of people's life. And to enable technical personnel to continue the research and development of intelligent transportation service technology, so that the highway intelligent transportation service can provide people with high-quality traffic service function while providing convenience for people.

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Design and Analysis of High Reliable Real-Time Wireless Motion Monitoring System Based on Big Data

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Abstract: In order to meet the requirements of community residents' safety and systematic management, timely and effectively deal with emergencies, and formulate emergency measures. It is very important to design a high reliability real-time wireless motion monitoring system based on big data technology. This paper first analyzes the shortcomings of community security in the era of big data, and then introduces the wireless monitoring in the community. Finally, the overall framework of wireless monitoring system for community security protection is designed, hoping to provide reference for related industries.

Keywords: Big Data; Real-time Wireless Motion; Detection System.

1. INTRODUCTION

Under the background of the rapid development of science and technology, community construction is also developing towards modernization and intelligence, and has become an important direction of urban development planning. Traditional residential quarters and security are gradually replaced by intelligent monitoring system [1, 2]. The results show that the application of wireless motion monitoring system can create a safe living environment for residents, so it is of great significance to study this subject.

2. PROBLEMS IN COMMUNITY SECURITY IN THE ERA OF BIG DATA

With the advent of the era of big data, in order to respond to the requirements of building a harmonious society and realize the advocacy of safe China, in the face of the current complex social security environment and unstable factors, the relevant departments bear very important responsibilities. In order to alleviate the work pressure of relevant departments, technical personnel should strengthen the research and development of technology and apply it to the field of safety protection. At present, ensuring domestic security has become a prerequisite for China's reform and development. However, as far as the actual situation is concerned, the application effect of the community security management system in China is not optimistic, and there are still some problems. For example, in order to increase sales, some real estate developers deliberately boast about the functions of the safety protection system in large

and small districts in order to increase sales. In fact, the functions of the security protection system in the community cannot be fully realized, thus laying the groundwork for the emergence of safety accidents in the community.

3. OVERVIEW OF INTERNAL WIRELESS MONITORING IN THE CELL

It is necessary for the wireless monitoring system of community security protection to meet the safety needs of residents. In the process of installing wireless monitoring system in the community, we should ensure that the system can respond quickly and timely in response to emergencies, so as to reduce the probability of unreasonable operation. Therefore, it is very important to strengthen the system design. In order to eliminate the potential risks, we should not only consider the interaction in the design stage, but also do a good job in the system layout design under the premise of meeting the operability, so as to enhance the user experience. Taking the wireless monitoring system installed in a community as an example, the system is composed of several parts, including home anti-theft alarm system, intercom system and monitoring system. Among them, the location of the monitoring system is mostly in the public parts of the community, such as: unit door, entrance and exit of the community, underground parking lot and elevator interior. The main reason is that these areas belong to densely populated areas, and there are many illegal and criminal phenomena. In the era of big data, the efficiency and quality of wireless monitoring can be improved with the support of big data technology, especially the popularization and application of digital cameras, which realizes the replacement of traditional monitoring cameras, and is conducive to solving the problems of traditional wireless monitoring system installation technology and installation difficulty. Wireless monitoring system as a security barrier within the community, can play a role in blocking criminals, can control the crime rate at the same time, enhance the experience of residents in the community.

4. THE OVERALL ARCHITECTURE DESIGN OF THE REAL-TIME WIRELESS MOTION MONITORING SYSTEM

It is the key point of the design of real-time wireless motion monitoring system to do a good job of

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prevention and control emergency and timely response, in order to meet the community residents' requirements for the practicability and reliability of the system. Based on the study of the crime forms in recent years, the motion monitoring system can be designed according to the characteristics of the crime in the community. It is suggested that the R & D personnel of the system should take the current alarm situation as the basis to prompt the alarm system to respond in time after detecting abnormal behaviors. At the same time, it is necessary to strengthen the research on new criminal ways, summarize the conditions of the case, reduce the difficulty of obtaining criminal clues, and determine the scope of criminal analysis. For example: given the implementation of wireless motion monitoring system face recognition, vehicle information recognition and other functions, the system can obtain clues in a short period of time, grasp the criminal facts, and provide information for the investigators to solve the case, so as to shorten the time of solving a case. Next, the author will introduce the overall architecture design in detail

4.1 Face Recognition Program Design

In the process of face recognition programming, opencv is used as the image database. As a cross platform development image library, this image library is similar to Linux. The world's major network companies have participated in the development of the image library, which makes its development speed very significant. After consulting the data, we know that the image processing interface provided by this image library has significant advantages in number and form, which can reduce the difficulty of image development. Programmers can develop images without knowing the image development algorithm. The face recognition program designed in the wireless motion monitoring system requires technicians to create videocapture objects by using the image library. When swiping cards, they can obtain the RGB image of the swipe by calling the read() function. Then the color space of the image is transformed by calculation, which is mainly transformed from RGB to HSV. In HSV color space, the image is binarized, and the face image can be obtained after processing.

4.2 Environmental Information Acquisition Module

Environmental information acquisition module is an important part of the real-time wireless motion monitoring system. In the design process, it is necessary to select the appropriate temperature and humidity intelligent sensor. Taking the wireless motion monitoring system developed by a manufacturer as an example, in order to ensure the realization of environmental information acquisition module function, the sensor used in the system is AM2302. This kind of sensor belongs to the calibrated

sensor, and the acquisition technology is very advanced, which can ensure the stability and reliability of the product. The sensor is composed of several parts, including capacitive humidity sensor, temperature measuring element and single chip microcomputer. Its advantages are fast reaction, high cost performance and strong anti-interference ability. Each sensor has been calibrated before leaving the factory, and the calibrated coefficient is stored in the sensor memory. In the process of use, the sensor will adjust the coefficient to ensure the accuracy of the data.

4.3 Data Base Station Design

Every once in a while, the data base station will send the token data token to the data acquisition terminal, and then receive the data uploaded by the terminal. Firstly, the base station analyzes the data, then stores the data locally through data backup, and uploads the data to the cloud platform server with the help of HTTP protocol.

The data base station of real-time wireless motion monitoring system consists of three parts: wireless transmission module, embedded control board, USB to serial port module and power supply. Sending data token to terminal and receiving terminal data is the function of wireless module; the post method of ensuring the stability of base station control program and sending HTTP protocol to cloud server is the function of embedded control board. The function of power supply is to convert voltage to meet the power demand of wireless transmission module. The USB to serial module can convert USB to serial port.

5.CONCLUSION

In a word, in the era of big data, the application of big data technology in the design process of real-time wireless motion monitoring system helps to improve the reliability of the monitoring system. Taking a monitoring system as an example, this paper gives a brief overview of the system design. Through the design of data base station, face recognition program and environmental information acquisition module, the system is endowed with more perfect functions.

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Dynamic Simulation Analysis of The Structure of Giant Robotic Arm Based on Proe And Ansys Platforms

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Abstract: Science and technology is the first productive force. For a long time, China has been committed to improving the level of modernization through technological innovation. This paper mainly introduces the significance of dynamic simulation analysis of giant manipulator structure design based on Pro / E and ANSYS platform. The finite element model and optimization design of giant manipulator based on Pro / E and ANSYS platform are briefly summarized, aiming to improve the operation level and automation level of giant manipulator.

Keywords: Giant Robotic Arm; Structural Design; Dynamics; Boundary Conditions.

1. INTRODUCTION

China is a big machine manufacturing country. In recent years, with the support of relevant modern technology, the level of mechanical manufacturing has shown an obvious upward trend. Giant manipulator is widely used in mechanical manufacturing and mechanical production. Based on Pro / E and ANSYS platform, the dynamic simulation analysis of giant manipulator structure design is committed to improve the rationalization level of giant manipulator structure and strengthen the flexibility and convenience of manipulator control.

2. THE DYNAMICS SIMULATION AND ANALYSIS SIGNIFICANCE OF THE GIANT ROBOTIC ARM STRUCTURE BASED ON PRO/E AND ANSYS PLATFORMS.

According to the data of the National Bureau of statistics, in 2015 and 2017, the total investment in China's machinery and equipment manufacturing industry was 323753277014300 yuan and 33098243882800 yuan respectively. In 2015 and 2017, the added value of mechanical equipment manufacturing industry was 64412.026 million yuan and 6696834.9783 million yuan respectively. It can be seen that the manpower, material resources and effective policies invested in the development of China's machinery manufacturing industry are not in vain. It can be predicted that the development scale of the machinery manufacturing industry will continue to expand in a period of time in the future. Based on ANSYS / Pro, it can analyze the feasibility of the mechanical design of the giant arm based on the dynamic analysis of the existing mechanical structure

and automation, and then complete the analysis of the feasibility of the mechanical design of the giant arm based on ANSYS / Pro. At present, the integrated CAD / CAM / CAE three-dimensional software Pro / E has excellent parametric technology application foundation. Technicians can complete sketch drawing, part making, assembly design, sheet metal design and processing on the software operation interface. As the fastest growing computer aided engineering software in the world, ANSYS software can cooperate with Pro / E software to complete the general finite element analysis. In recent years, with the increasing demand for mechanical manufacturing and automatic mechanical operation in China, dynamic simulation analysis of giant manipulator structure design has become the main research topic of relevant researchers [1-3]. The research on the interface connection between ANSYS and Pro / E has made remarkable achievements, which makes the dynamic simulation analysis of giant manipulator structure design based on Pro / E and ANSYS platform have a solid foundation. It can be predicted that with the support of Pro / E and ANSYS platform, the rationality of structural design of giant manipulator will be effectively improved.

3. GIANT ROBOTIC ARM FINITE ELEMENT MODEL AND OPTIMIZED DESIGN BASED ON PRO/E AND ANSYS PLATFORMS.

3.1 Finite Element Model.

According to the data of the National Bureau of statistics, in 2015 and 2017, the operating surplus of China's machinery and equipment manufacturing industry was 178898329000 yuan and 1833691251800 yuan, respectively. Therefore, mechanical equipment manufacturing has become one of the main economic sources in China. The finite element model of giant manipulator based on Pro / E and ANSYS platform has high parameter configuration. The information transmission and sharing can be completed through the fixed interface on the platform of Pro / E and ANSYS to realize the three-dimensional solid modeling of giant manipulator.

In the finite element analysis of the giant manipulator, the small deformation of the elastic body can be analyzed by the physical force acting on the elastic body and the surface force acting on the boundary elastic body, and then the finite element static equation can be derived to accurately analyze the linear relationship

between strain, stress and displacement. Finally, according to the minimum potential energy theorem, the corresponding stress diagram and displacement diagram are obtained, and the simplified model of giant manipulator is constructed. In the design of giant manipulator, the bolt hole is taken as the main load bearing body, and the force can be exerted by adjusting the tightness of the bolt. It is worth mentioning that in the simplified model design of giant manipulator, it is necessary to select reasonable mechanical manufacturing materials and analyze the relationship between material properties and robot arm operation function. Generally speaking, aluminum material has more comprehensive advantages. In addition, in the design of the finite element model, it is necessary to select the element model and accurately determine the young's modulus and elastic modulus of the material. Through the simulation experiment, the element model, Young's modulus and elastic modulus are determined as solid 92, $e = 206\text{gpa}$ and 0.3 respectively. Then, the intelligent grid generation method is used to divide the giant manipulator grid, and the load is carried out according to the test item evaluation standard of 33550-d82a0 shift mechanism assembly test program.

3.2 Boundary Conditions.

Giant manipulator is widely used in China's industrial manufacturing industry. The simulation degree of its operation and the rationality of its structure directly affect the production efficiency and efficiency. In recent years, China attaches great importance to the simulation design and structural optimization of giant manipulator. In the dynamic simulation analysis of giant manipulator structure design based on Pro / E and ANSYS platform, it is necessary to master its boundary conditions effectively. In the early design, the bolt hole is used as the load bearing structure of the giant manipulator, which improves the convenience of force application to a certain extent. On this basis, in the boundary condition analysis, according to the 33550-d82a0 shift mechanism assembly test program test item evaluation standard, the large end of the giant manipulator should be effectively fixed, and the stress values in X direction, Y direction and Z direction should be determined by applying load on the small end, which are 1000N, 1000N and 800N respectively.

3.3 Optimize The Comparison.

According to the finite element model and boundary conditions, in order to clarify the dynamic simulation effect of giant manipulator structure design based on Pro / E and ANSYS platform, equivalent force contour map and displacement contour map of giant manipulator are drawn. It can be seen that the stress of the two bolt joints close to the straight bar on the big end disc of the giant manipulator and the structure that the straight rod contacts with the big end disk are the most stressed. Based on the design basis of this structure, it can be seen that the wear of this position

will be the most serious in the operation of the giant manipulator. Therefore, in order to achieve the goal of structural optimization design, the stress distribution of the two bolt connections close to the straight bar and the connection between the straight rod and the large end disk can be completed by increasing the number of bolts, so as to improve the stability of the whole structure of the giant manipulator, increase the load carrying capacity, and add buffer design to reduce the stress concentration effect. After the structural optimization, in order to clarify the actual effect of optimization, the static analysis of the giant manipulator before and after optimization is carried out, including the maximum displacement, the maximum equivalent stress and the minimum equivalent stress. The maximum displacement, maximum equivalent stress and minimum equivalent stress before optimization are 0.053837, 0.41e + 07 and 838.494 respectively, and the maximum displacement and maximum stress after optimization are 0.053837, 0.41e + 07 and 838.494, respectively the displacement stress and minimum equivalent stress are 0.051686, 0.51e + 07 and 156.698, respectively. It can be seen that the maximum displacement and minimum equivalent stress of the optimized Mega manipulator structure are obviously better than those before optimization based on Pro / E and ANSYS platform. With the support of relevant optimization measures, although the maximum equivalent stress of the optimized giant manipulator structure increases, the stress distribution on the surface of each part is in a reasonable range, which will not increase the operation risk of the giant manipulator, nor cause loss to the operation accuracy of the giant manipulator.

4. CONCLUSION

In a word, science and technology are the first productive forces. According to the urgent needs of mechanical manufacturing and automatic mechanical operation in our country, the dynamic simulation analysis of giant manipulator structure design based on Pro / E and ANSYS platform is very important. With the help of Pro / E and ANSYS platform, the relevant researchers can master the structural parameters of the giant manipulator, and then optimize the structure according to the finite element model and boundary conditions, so as to improve the mechanical operation level.

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Establishment and Practice of Unconventional Petroleum Geology

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Abstract: The theory knowledge system of unconventional oil and gas geology is a breakthrough innovation and development of traditional geological theoretical knowledge system, an outstanding contribution made by China in the field of oil and gas geology, and an indelible contribution to the rational and efficient utilization of natural resources. The theoretical knowledge system of unconventional oil and gas geology is not the first time to emerge in China, but has been explored and developed by researchers in related fields for more than ten years, and a relatively perfect theoretical knowledge system framework has been formed. Unconventional oil and gas geology are a theoretical knowledge system with unimaginable development potential. Through the development and improvement of the theoretical knowledge system of unconventional oil and gas geology, we can effectively use the natural resources such as oil and natural gas that cannot be exploited by conventional methods, which can effectively relieve the pressure of global resources and is conducive to the harmonious and healthy development of human civilization. Today, although unconventional oil and gas geology has made outstanding contributions in many aspects, there are still many aspects of theoretical knowledge system that are not yet mature, and there are still great potential forces that need to be explored and transformed into the driving force of human society. In this paper, we will describe the historical development background of the theoretical knowledge system of unconventional oil and gas geology, describe the related concepts of unconventional oil and gas geology, and make a detailed introduction to the theoretical knowledge system of unconventional oil and gas geology, and make a systematic summary of the practical application of unconventional oil and gas geology fully combined with the reality and objective reality.

Keywords: Geology; Unconventional oil and gas; Establishment and practice

1. HISTORICAL DEVELOPMENT BACKGROUND OF UNCONVENTIONAL PETROLEUM GEOLOGY

Through the conventional theoretical knowledge system of oil and gas geology, only about 20% of China's huge oil and gas resources can be effectively utilized, while the remaining 80% of the oil and gas

resources can only be left in despair. With the development of the times and the progress of society, people's living conditions have improved significantly. At the same time, the demand for oil and gas resources is also growing rapidly, and the exploitation of unconventional oil and gas resources is imminent. With the unremitting efforts of numerous researchers in related fields, remarkable achievements have been made in the field of unconventional oil and gas geology. Among them, the development of unconventional oil and gas resources such as shale gas and tight gas has effectively alleviated the demand for oil and gas resources in the society. Many practitioners in the industry believe that, in today's increasingly serious resource crisis, unconventional oil and gas geology theory The establishment and development of knowledge system can point out the direction for the development of oil and gas resources in the future, and it will also be the inevitable result of more rational and efficient utilization of resources in the future [1].

The establishment of the theoretical knowledge system of unconventional oil and gas geology is a breakthrough innovation and development in the field of traditional oil and gas resources. It has a historic change in the reservoir, caprock, development mode and development mode of the conventional oil and gas geology theoretical knowledge system. At the beginning of its establishment, the theoretical knowledge system of unconventional oil and gas geology is aimed at more reasonable and efficient unconventional oil and gas resources that cannot be handled by conventional oil and gas resources development methods. Therefore, it will inevitably impact on the inherent cognition of relevant practitioners in the field of conventional oil and gas resources. In the development and utilization of unconventional oil and gas resources, unconventional oil and gas geology has broken through the tradition According to the knowledge system of unconventional oil and gas geology theory, oil and gas can only migrate through buoyancy, resulting in a strong impact; after the unconventional oil and gas geology theory knowledge system innovates and develops fracturing technology, unconventional oil and gas can only accumulate in large areas, while in the traditional field related practitioners' inherent cognition, oil and gas can only migrate through buoyancy, which causes strong impact The development and utilization of gas

resources has broken through the bottom line of Darcy's law in the hearts of countless employees related to infectious oil and gas resources. The theoretical knowledge system of unconventional oil and gas geology is not completely different from the traditional knowledge system of conventional oil and gas geology as people think. On the contrary, unconventional oil and gas geology and conventional oil and gas geology complement each other, jointly seek new ideas for the development of oil and gas resources, constantly improve their own technical level, and strive to contribute to the lack of social oil and gas resources In their own efforts [2].

In order to adapt to the development trend of the times and alleviate the increasingly serious social resource shortage crisis, it is urgent to improve and develop the theoretical knowledge system of unconventional oil and gas geology as soon as possible, constantly break through the theoretical knowledge system of traditional conventional oil and gas resources exploitation, and constantly strengthen the rational and efficient utilization of unconventional oil and gas resources The whole society can enjoy the welfare of oil and gas resources technology breakthrough, and contribute to the socialist modernization construction of our country.

2.BASIC FRAMEWORK OF THEORETICAL KNOWLEDGE SYSTEM OF UNCONVENTIONAL PETROLEUM GEOLOGY

The establishment of the theoretical knowledge framework of unconventional oil and gas geology is to make more rational and efficient use of the traditional areas in which conventional oil and gas resource technology can not be economically and reasonably developed. Because there are many technical difficulties in the production of unconventional oil and gas resources, it can not be reasonably and efficiently developed through the relevant technologies in the theoretical knowledge system of conventional oil and gas geology [3].

Shale gas, tight gas, deep basin gas and other oil and gas resources that are difficult to be developed and utilized belong to unconventional oil and gas resources. Shale gas is a kind of natural gas that is free adsorbed on organic shale. Conventional oil and gas resource extraction technology is difficult to effectively separate shale gas from organic shale; tight gas refers to natural gas in sandstone formation with permeability less than 0.1, which is caused by low permeability There are technical difficulties in conventional oil and gas production technology. Tight gas and shale gas both occupy an important position in unconventional oil and gas resources, which is the inevitable foothold to relieve the pressure of social oil and gas resources, and also the key and difficult points that must be overcome in the theoretical knowledge system of unconventional oil and gas geology. Through the unremitting efforts of China's oil and gas

resources researchers, breakthroughs have been made in the development and utilization of shale gas and tight gas And has gradually become the main growth point of China's natural gas production. Like the shale gas revolution in the United States in the past, the reform and innovation of unconventional oil and gas resources extraction technology in tight gas will also have a decisive impact on China's oil and gas resources exploitation pattern, and will continue to enhance China's ability to make more rational and efficient use of unconventional oil and gas resources. It is expected that the exploitation of unconventional oil and gas resources in China will be realized by 2030 At present, the terrorist growth rate is 10 times, realizing the revolutionary development of China in the field of unconventional oil and gas resources [4].

No matter tight oil or tight gas, due to the low permeability factor, cannot use the conventional oil and gas production technology which depends on the ability of oil and gas reservoir itself. Only by using more human and material resources can we carry out certain oil and gas resources exploitation work, which is not conducive to the rational and efficient utilization of oil and gas resources. These are the unconventional oil and gas geology theories The foundation of the knowledge system cannot be achieved by conventional resource extraction technology. Through continuous development and innovation in the field of traditional oil and gas resources exploitation, the comprehensive utilization rate of China's oil and gas resources is constantly improved, and outstanding contributions are made to the shortage of oil and gas resources in China[5].

3.THEORY OF UNCONVENTIONAL GAS RESERVOIR FORMATION

Based on the systematic summary of the research on unconventional oil and gas geological characteristics, migration and accumulation mechanism, a more perfect theoretical knowledge system of unconventional oil and gas accumulation geology has been formed. In the theoretical knowledge system of unconventional oil and gas accumulation geology, the research on "oil and gas reservoir" is the top priority of all research projects. It focuses on the matching ability of lithology, physical property, oil property and other oil and gas related properties and anisotropy, as well as the matching ability between "six major functions", so as to establish a perfect evaluation standard for various types of oil and gas resources To maximize the huge potential of China's oil and gas resources, improve the utilization efficiency of China's oil and gas resources, and make it develop towards a reasonable and efficient healthy mode. The improvement and development of the theoretical knowledge system of unconventional oil and gas accumulation geology effectively guides the exploitation and production of unconventional oil and gas resources in China, enables relevant oil and gas

resources institutions in China to formulate production plans timely and accurately, and greatly improves the utilization efficiency of unconventional oil and gas resources in China [6].

The related factors such as "foliation" and "fracture" play a decisive role in the high production of shale gas. It is the theoretical basis for China to maximize the exploitation and utilization of shale gas resources in the South China Sea according to these relevant conditions. With the support of the theoretical knowledge system, the relevant staff of oil and gas exploitation can select the most appropriate mining site for scientific and standardized exploitation, which is the key guarantee for the production of oil and gas resources. According to the different geological conditions of different oil and gas resources, we can establish relevant mathematical models purposefully, and then carry out systematic calculation through a large number of theoretical formulas, which reveals the objective law of the field of oil and gas resources, effectively curbs the confusion of oil and gas resources exploitation in the traditional mode, which is an important progress in the field of oil and gas resources exploitation in China, and greatly improves our country Oil and gas resource exploitation efficiency.

4. PRACTICAL PRACTICE OF THEORETICAL KNOWLEDGE SYSTEM OF UNCONVENTIONAL OIL AND GAS GEOLOGY

The theoretical knowledge system of unconventional oil and gas geology has greatly led the development of oil and gas resources industry, played a good guiding role in the establishment of industry standards, and indirectly promoted the construction of national laboratories and the training of related talents. Over the years since the birth of the theoretical knowledge system of unconventional oil and gas geology, with the strong support of the state and the support of relevant policies of the state, the major research laboratories have made great efforts in the field of unconventional oil and gas resources, and constantly opened up a new situation of unconventional oil and gas resources, providing a strong resource guarantee for the socialist modernization drive [7, 8].

With the unremitting efforts of oil and gas resources related researchers, the theoretical knowledge system of unconventional oil and gas geology in China has been continuously developed and perfected, and gradually tends to mature stage. It has played a key role in guiding the exploitation of unconventional oil and gas resources such as shale gas, tight gas, deep basin gas and so on. The exploitation of unconventional oil and gas resources has been carried out for ten years in China, but it is still in the primary stage in the field of unconventional oil and gas exploitation, which is not perfect. However, it depends on the immature theoretical knowledge system of unconventional oil and gas resources to guide the exploitation and production of unconventional oil and

gas resources such as shale gas, deep basin gas, tight gas and tight oil. Therefore, China's unconventional oil and gas resources exploitation has embarked on the road of modernization and normalization. In the report on supply and demand forecast and investment strategy of China's unconventional oil and gas market in 2020-2026 issued by relevant national institutions, it is clearly pointed out that it is necessary to conduct a complete industry survey and Analysis on the unconventional oil and gas resources industry, including the domestic market situation of the unconventional oil and gas industry, systematic analysis of the foreign unconventional oil and gas resources industry, and in-depth understanding of the domestic and foreign unconventional oil and gas resources industry. Based on the market supply and demand relationship of unconventional oil and gas resources, this paper comprehensively and carefully forecasts the prospect of unconventional oil and gas resources industry, and finally comes to a comprehensive consideration of the unconventional oil and gas resources industry, so that the unconventional oil and gas resources practitioners can have an accurate evaluation of the current situation and future development mode of the unconventional oil and gas resources industry.

With the progress of the times, the development of society, and the gradual improvement of the theoretical knowledge system of unconventional oil and gas geology, China's unconventional oil and gas resources industry began to develop towards modernization, scale and normalization. Due to the continuous maturity of unconventional oil and gas resources exploitation technology, China began to carry out industrial production of tight oil and put it into the strategic reserve. Super large-scale tight gas reservoirs with the scale of 1 billion have been explored in various places. In the territory of China, shale oil resources also have great exploitation value and potential. According to the exploration of unconventional oil and gas resources in China, the scale of favorable oil and gas accumulation zones is conservatively estimated to be seven sections longer than that of Ordos Basin. In the development of unconventional oil and gas technology, China's technology in the field of oil and gas resources development is also accumulating and steadily increasing, which is constantly bringing new reform and breakthrough to the theoretical knowledge system of unconventional oil and gas geology.

5. CONCLUSION

The establishment of the theoretical knowledge system of unconventional oil and gas geology is a historic leap from conventional oil and gas to unconventional oil and gas development in the global oil and gas resources industry, and has an indelible outstanding contribution to the rational and efficient utilization of natural resources. Through the

unremitting efforts of numerous researchers in the field of oil and gas development over the past ten years, they have continuously optimized the industrial structure of unconventional oil and gas resources development, systematically updated the unconventional oil and gas development technology, and effectively promoted the rational and efficient development of unconventional oil and gas resources such as tight gas, tight oil and shale gas. In the future, with the progress of the times, the development of society, and the continuous improvement of the theoretical knowledge system of unconventional oil and gas geology, the development technology of unconventional oil and gas resources will bear more and more historical responsibilities, and further promote the comprehensive utilization of oil and natural gas, which will help alleviate the increasingly serious pressure of resource shortage in social life and provide necessary resources for the development of industrial civilization Security. For the development and utilization of unconventional oil and gas resources, we should speed up the improvement of the theoretical knowledge system of unconventional oil and gas geology, strengthen the investment in scientific research, and take the development of conventional oil and gas resources in the traditional mode as a contrast, and further sublimate the theoretical knowledge system of unconventional oil and gas geology.

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How To Solve The Security Problem Of Internet Of Things With Blockchain Technology

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Abstract: In recent years, the Internet of things technology has been developed rapidly, and it has been fully utilized in our life, which has brought some positive changes to people's life. This paper will analyze the challenges faced by the Internet of things, and then discuss the methods of blockchain to solve its related problems.

Keywords: Blockchain technology; Internet of things; Security issues.

1. INTRODUCTION

With the application of the Internet of things in all aspects has achieved certain results, enterprises also began to seek ways to solve problems relying on the Internet of things. Because the Internet of things will collect all-round resources from multiple points when collecting data, so that enterprises can get more comprehensive data in competition, and then enhance their competitive advantage [1-3]. However, although the Internet of things has the above advantages, it also has the problem of data leakage. This is because it needs to collect resources through certain devices, so it is vulnerable to hackers.

2. CHALLENGES FACING THE INTERNET OF THINGS

When people talk about blockchain, they often associate it with bitcoin, but blockchain can not only be used to encrypt currency, but also be used in many fields of data encryption. While the Internet of things solves the problem, it also has some defects. Blockchain technology can solve the related problems well, so that the data can be in a more secure environment.

2.1 Unauthorized Access To Equipment

When people use the Internet of things, they will let multiple devices connect to the same network. When the security system of one of the Internet of things devices is not updated in time and there are loopholes, it is easy to be used by hackers, so that hackers can invade the whole network, so that data security can not be guaranteed [2]. For example, when employees log in to the network using devices with weak authentication, they may have certain security risks and be attacked by hackers. In the actual working environment, the Internet of things equipment is very rich, including television, mobile phones, scanners and printers, so the sources of danger are diverse, and these

devices are likely to be attacked, which makes the security of the Internet of things have great hidden dangers.

2.2 Software Attack

Internet of things devices are often intelligent devices, which need to be connected to the network to be used. When there are security risks in the operation process of the device, it is easy to be attacked by malware and viruses, so that the relevant data can not be disclosed, and the normal use of the network and devices will have some problems.

2.3 Network Vulnerabilities

When the Internet of things is used, it needs not only certain equipment, but also some protocols. In the process of protocol application, some vulnerabilities are easy to appear. When these vulnerabilities are detected by the attacker, the attacker can use the vulnerabilities to control the network, and even make the related devices unable to operate normally.

2.4 Encryption Attack

When transmitting data in the Internet of things, both the sender and the receiver are machine devices. In order to make the transmission process more secure, they often encrypt the data to some extent. However, if the encryption is not difficult enough or the key is lost, then hackers can attack the transmission process and crack the key to obtain the relevant data, which is not conducive to data protection.

3. BLOCKCHAIN USE CASE

Blockchain technology can provide certain solutions for the security problems in the information transmission process of the Internet of things. Its role is to realize the stability of data, so that it will not be changed and tampered after storage and recording, so it can play an active role in data storage security and preventing fraud.

3.1 Traceability And Security Of Financial Transactions

Blockchain technology will store the received data into a block when it is applied, and once it is stored, it can not be changed, and can not add new content to it, so it has the characteristics of irreversibility. In the process of transaction, both parties need to confirm. Only when both parties have confirmed can a complete transaction be formed. The application of blockchain can save the confirmation information of both sides of the transaction, and when someone tries to tamper with

the data stored in the blockchain, its operation process will certainly produce a certain record in the blockchain, so as to effectively prevent the occurrence of data leakage [3].

3.2 Secure Data Storage

The Internet of things is prone to the problem of data leakage in the application process, while the blockchain technology provides a record that data can not be tampered with, and will record all operations related to data to a certain extent, making illegal operations nowhere to hide, so as to achieve better data protection. This technology can not only be used in financial transactions, but also has a certain application ability in all aspects. For example, in the aspect of medical care, it can protect the patient's information and the records of hospital management work very well, and at the same time, it can also form a certain supervision role in the distribution of prescription drugs.

3.3 Reduce Human Error

In addition to the problems of data loss, tampering and data leakage, some conventional and artificial data editing will also produce some errors, which are difficult to avoid. And blockchain technology will play a positive role in it. It makes managers no longer need to rely on user name and password to log in the system, but through encrypted identification to make them pass the relevant verification of the system, and when they operate on the data, all their actions will be monitored, which can effectively reduce the generation of errors.

4. HOW BLOCKCHAIN FORMS TRUST FOUNDATION

Blockchain technology can make the transmission of information more secure by building a trust base, which can be divided into intelligent contract, centralized private blockchain, decentralized public blockchain and workload proof. Through the application of these technologies, the security of information is ensured, and the advantages of blockchain technology are fully exerted.

4.1 Smart Contract

Smart contract refers to a kind of protocol that all participants in the transaction process must abide by, and it has the characteristics of the Internet can not be tampered with, so it makes the transaction more

reliable and irreversible.

4.2 Centralized Private Blockchain

Centralized private blockchain is used in private organizations, such as internal enterprises. Compared with traditional management systems, private blockchain makes information more secure, which is conducive to the protection of the rights and interests of relevant organizations.

4.3 Decentralized Public Blockchain

Compared with centralized private blockchain, decentralized public blockchain is more secure and transparent. No one can tamper with the contents of the transaction. However, with the increase of security level, it will be more difficult to manage it, and often need to spend more resources.

4.4 Proof Of Workload

Workload proof algorithm is to verify the data to be added to a certain extent. Only when it has the relevant qualification can it join the blockchain. Moreover, the data joining is one-time, and the related data cannot be deleted, modified and other activities in the later stage, so as to avoid the risk of data loss.

5. CONCLUSION

Through the analysis of the risks faced by the Internet and the solutions provided by the blockchain, the final blockchain can be obtained to ensure the data security. The blockchain can make the use of the Internet of things more secure and reduce the risk of data tampering and privacy disclosure through the monitoring, encryption algorithm and transaction verification technologies provided by the blockchain.

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Design of Embedded System Architecture Based on MCU + GPRS

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Abstract: This paper takes the embedded system architecture design of MCU + GPRS as the main research object, aiming at the overall construction of embedded system and the design of software and hardware of the system, carries out the related content of the new theory description. Combined with the current development trend of microelectronic technology industry, the research on embedded system architecture design is carried out to provide theoretical support and technical guidance for practitioners in related industries. For reference only.

Keywords: Embedded; system architecture; GPRS module; remote terminal.

1. INTRODUCTION

With the development and progress of China's microelectronic technology industry, embedded system architecture as the representative of the new era of science and technology, has become an important boost to the development of all sectors of society. In particular, the design of embedded system architecture based on MCU + GPRS has become the research topic of the industry, which leads to the thinking and exploration of researchers [1-3].

Embedded system architecture, mostly refers to the integration of various equipment and application software into the computer system, generally refers to the integrated operation of system software and hardware. At the same time, the main advantage of this kind of system is that it can realize the high degree of intelligent equipment, with good response speed and calculation speed. In addition, the corresponding demand environment is relatively low, and it can simultaneously carry out multi task complex data calculation [4, 5]. And it will not affect the running state of the system. With the help of microprocessors, it can provide a design scheme with low energy consumption and outstanding performance for handheld devices. In addition, the microprocessor can collect the field data information and conduct remote control combined with GPRS network system.

2. SOFTWARE AND HARDWARE DESIGN OF EMBEDDED SYSTEM ARCHITECTURE

2.1 System hardware design

The hardware design of embedded system architecture mainly focuses on the design of circuit operation path, and completes the effective data collection, remote transmission and other related operations in the system.

The hardware circuit system module needs to combine the serial port signal of microprocessor to realize the effective conversion of relevant information. With the help of level conversion chip, the circuit can be effectively connected with the serial port, and the serial port and field instrument can realize information communication, and the relevant data can be recorded quickly. In addition, the field instrument can provide the corresponding power supply. The structure of serial port circuit should meet the scientific design requirements and meet the operating conditions of different circuit paths. Embedded system design needs to configure four serial ports, at the same time can complete the data receiving and sending. In addition, the system can also realize the effective connection of other equipment structures, and complete the sending and receiving of different data at the same time. It should be noted that there may be a certain gap between the serial port and the working voltage of different devices. Therefore, voltage detection or voltage allocation should be carried out to ensure the safe connection of the equipment. In addition, some special serial ports belong to RS bus interface, and other interfaces belong to standard bus interface. According to the design requirements in principle, relevant designers carry out a number of content design for system modules. At the same time, it is necessary to meet the different design requirements of serial port to ensure that the serial port of the equipment can cope with a variety of different voltage gaps in actual work, and realize the effective connection of different lines.

2.2 System software design.

The software design of embedded system mainly includes client design and remote port design.

The design of client side requires users to use the operating system in the computer to realize the effective control of related functions, mainly for the effective receiving and sending of SMS content, and secondly for the function of reading and deleting the content of SMS. After the program is executed, the serial port can be initialized, which can promote the effective association between the electronic computer and the embedded system, so as to realize the effective association between the electronic computer operating system and the embedded system, so as to carry out various operations in the computer. In addition, it can print the relevant information to help users complete

the established operation requirements for the screen information. It can be seen that the client design of embedded system architecture can realize the user's information sending, reading, deleting and other functions. When the user inputs the number 1, the system will enter the information transmission mode. According to the information content and information data provided by the screen interface, the information transmission can be realized at the remote terminal. In addition, when 2 is input on the screen, the system can realize the reading mode of system information, and at the same time, the system will quickly display the information to be presented to help users select the corresponding requirements. When the user inputs the number 3, the system will automatically exit the relevant interface. The user only needs to close the serial port, which means that the system has received the closing index and realizes the system exit mode.

Remote port design is to ensure the normal operation of the program, with the help of modular processing mode, to achieve remote control of the system. It includes: GPRS module, motor module, etc. in the remote terminal control, the program should first select the corresponding information type, and wait for the receiving and sending of the information. When receiving the specific short message, the corresponding information extraction mode can realize the effective judgment of the information. At the same time, the remote terminal can realize the common functions, such as information query, motor pause, etc. when the remote information query is carried out, the program terminal will judge the information data to be converted by itself, and analyze and sort out the conversion value of registers. When the remote terminal calls the related functions, it can support the definition of variables, arrays and other information functions. In addition, on the basis of this basic function, you can also call the corresponding A/D conversion value function to carry out the conversion of your electricity value. When carrying out relevant operations, the power value is displayed in the form of binary calculation. If the user wants to carry out SMS transmission at the remote terminal, it can be expressed in the form of string, and the string composed of additional auxiliary information can be used. In order to fully express the digital information, and the corresponding character information is organized and transformed, and transmitted to the first address. Most of the SMS content is a function information, and the function pointer can represent the SMS content and the phone number of the receiver.

3. DESIGN SUGGESTION OF EMBEDDED SYSTEM ARCHITECTURE

For the design of embedded system architecture, we

need to further improve the functionality of system information, for example, to change or adjust the traditional information data, with the help of remote terminals, to achieve data correction and adjustment. At the same time, the scientific design of embedded system architecture needs to avoid the operation problems existing in the traditional system architecture design process. Especially in the multi task and multi computing path, when the related system is running in multi task, it is very likely to cause data loss or data calculation measures, which will lead to the subsequent joint effect. As the designer of the system architecture, we must enhance the ideology, optimize the structure design, promote the functional construction and stability development of embedded system design, and promote the rapid upgrading of the industry.

4. CONCLUSION

To sum up, the architecture of embedded system must adopt the cutting-edge design concept, so as to achieve efficient design quality, good modular operation path and efficient data processing. According to the above advantages, embedded system has become an important assistant in many fields, such as aerospace, intelligent instrument, etc., and has been widely recognized and supported. At the same time, in this SCM + GPRS embedded system architecture design system, with the help of centralized management of data information, as well as the creation of information links and other related functions, further highlights the practicability of the system.

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Analysis on the Planning Strategy of the Monitoring System of University Computer Room from the Perspective of Security

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Abstract: The school information construction puts forward strict requirements for the computer room environment, so this paper takes the planning strategy of the computer room monitoring system in Colleges and universities from the perspective of security. First of all, this paper analyzes the shortcomings of traditional inspection methods, and then puts forward the idea of planning and design of computer room monitoring system in Colleges and universities, hoping to provide reference for related industries.

Keywords: University computer room; Monitoring systems; Environmental monitoring

1. INTRODUCTION

With the rapid development of computer network technology, the popularization and application of information technology has changed people's learning and life style. The information construction of colleges and universities is in full swing, but the increase of the number of servers increases the pressure of the operation and maintenance of the computer room, which puts forward very strict requirements for the environment of the computer room. Therefore, it is of great significance for the development of information construction in Colleges and universities to do a good job in the planning of computer room monitoring system

The traditional monitoring mode of university computer room mainly refers to manual monitoring. In short, the staff need to check the environment of computer room regularly. For example: power supply stability, indoor temperature, humidity and air conditioning operation. However, there are many deficiencies in this monitoring method, which are manifested in the following aspects: (1) the monitoring efficiency is low, and the process is more complicated. (2) The accuracy of manual monitoring cannot be guaranteed, the main reason is that the monitoring personnel will take their own perception as the basis when making decisions, but in fact, the accuracy of the monitoring personnel's perception of the room environment is low. (3) Monitoring personnel can't check the environment of the machine room in real time, so it's easy to miss the best time for emergency repair [1].

Therefore, there are many deficiencies in the traditional monitoring methods. In order to avoid the

above phenomena, it is necessary for technicians to design and build the monitoring system of the computer room based on the environmental requirements of the computer room, realize the real-time monitoring of various indicators of the computer room environment, and obtain the information of temperature and humidity changes in time, so as to lay a solid foundation for the timely treatment of faults.

2. COMPUTER ROOM ENVIRONMENTAL MONITORING SYSTEM PLANNING AND DESIGN STRATEGY

2.1 Key Points Of System Planning

The design and planning purpose of the computer room monitoring system is to monitor the computer room environment in an all-round way, and there is no place that cannot be seen from the field of vision. During the planning stage, the following points should be followed:

2.1.1 Install the temperature and humidity monitoring instrument to the key position of the machine room, play the role of collection and analysis of the monitoring instrument, and help the monitoring personnel grasp the temperature and humidity information of the key position in time. After the acquisition, the monitoring instrument can display the specific value through the display screen. The key positions mentioned here also include the air conditioning and power supply of the machine room. The main reason is that air conditioning and power supply are common fault locations, and the threat is high. If they are not dealt with in time, they will lead to a series of problems. For example, after the air conditioner fails, the temperature in the machine room will gradually rise due to no regulation, which will eventually lay the foundation for the fire accident. The application of monitoring equipment can transmit alarm information to the technicians after finding the hidden trouble, so that the technicians can understand the actual situation in the first time and take effective measures to deal with the trouble to avoid the possible risk;

2.1.2 There are a large number of dense areas in the machine room. These areas have the same characteristics. The distribution of equipment is relatively centralized and the heat generated is large, which is the fault prone area. In the process of system planning, it is necessary to install the temperature and

humidity monitoring instruments in these areas, and determine the difference between the temperature and humidity between the monitoring area and the normal area through comparison, so as to achieve the purpose of protecting the core machine room. The core area in the core computer room mainly refers to the core router, switch computer room and data computer room.

2.1.3 After the completion of the planning, the technicians need to follow the relevant technical standards and reasonably configure the temperature and humidity monitoring points. The layout requirements are as follows: first, ensure that the number of points is consistent with the standard, and reduce the cost as much as possible on the basis of ensuring the monitoring quality. Secondly, the distribution of points should be scientific and reasonable, and must be arranged in key areas. After following the above points, the application value of environmental monitoring system can be brought into play.

2.2 Design Points Of Air Conditioning System In Computer Room

From the above analysis, it can be seen that air conditioning can improve the environment in the computer room of colleges and universities. In order to ensure the realization of the role of air conditioning, technicians need to take redundancy as a key consideration when designing the air conditioning system. It is recommended that technicians follow the following points:

2.2.1 Before the design of air conditioning system, the actual and extended energy consumption of the computer room shall be defined in combination with the existing data, and it shall be taken as the basis for the configuration of air conditioning system. Generally, the university computer room needs to be equipped with more than two sets of air conditioning system, and the location of the system shall be high energy consumption and high heat area as far as possible. The main reason is that the equipment in these areas is relatively concentrated, so the temperature rises rapidly, if not controlled, it is easy to cause safety failure. Considering that the air conditioning system runs for a long time, and it is in overload operation state for a long time, the probability of failure is high. If only one set of air conditioning system is set, the realization of air conditioning system function cannot be guaranteed. Therefore, it is an effective way to solve the problem to set up two sets of air-conditioning system and one of them as standby.

2.2.2 When arranging the internal air conditioner, it must be accurate to the specific point. At the same time, redundant air conditioners should be arranged reasonably to strengthen the cooling effect of air

conditioners;

2.2.3 In order to ensure the effectiveness of air conditioning system switching, in the design process, two sets of air conditioning systems can be redundant [2].

2.3 POWER SYSTEM PLANNING

Power supply stability is very important for the safety of computer room, so the power system planning of computer room belongs to the important content of computer room monitoring system planning. When technicians design the power system, they should configure more than two lines of mains power. At the same time, they should also configure a diesel generator room in the room. At the moment when one line of mains power is disconnected, the standby mains power can be switched smoothly. If the two mains are disconnected successively under the influence of the fault, the diesel generator will replace the mains. The electricity stored in the diesel generator needs to meet the needs of 5 hours of operation in the machine room. If the power supply has not been restored after the power outage for more than 5 hours, the technicians need to shut down the equipment in the machine room to eliminate the adverse impact of the power outage on the machine room and protect the safety of the machine room.

3.CONCLUSION

To sum up, under the background of the rapid development of information technology, colleges and universities attach great importance to the construction and development of information technology, and the computer room is a typical representative. In order to ensure the safety of the computer room, it is suggested that universities should do a good job in the planning and design of the computer room environmental monitoring system, and follow the technical points in the planning and design process, so as to play the role of the environmental monitoring system.

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On the Optimization of Computer Network Database Security Technology

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Abstract: With the advent of the computer age in the 21st century, computers have become an indispensable part of our common people. Therefore, the optimization of computer network database security technology has become extremely important and urgent. As an important part of computer system control and information data preservation, the security of computer network database is becoming increasingly insecure due to the openness of network system. More and more people who are proficient in computer technology are making computer Trojans with bad intentions to steal other people's information. Therefore, we should speed up the security technology of computer network database. Optimize to improve the security environment of computer network database.

Keywords: Computer technology; Network database; Security environment.

1. INTRODUCTION

With the advent of the computer age, not only our lives have changed greatly, but also, we can't live without computers. As an important part of computer system control and information database security technology, whether the environment of computer network database is safe or not is related to the privacy security and benefits of all our personal information. At present, due to the lack of our computer database protection technology, more and more information theft and loss events occur. Now the security environment of computer database becomes more and more passive and insecure. Therefore, we need to improve our computer database security environment as soon as possible, and we need to take more useful technologies to solve this vulnerability. Less information loss events, complete the task of computer database security protection, provide a strong guarantee for people's information security in computer database [1-3].

2. THE DIRECTION OF COMPUTER NETWORK DATABASE SECURITY OPTIMIZATION

2.1 Data Protection For Optimized Transportation Normal Transportation

Due to the large amount of information transported by the computer network database, it is easy to be attacked in the process of transporting data to the database. In this process, we should protect the information transportation. Therefore, in the transportation stage, the information of transportation should be verified and supervised to ensure that the

transportation path of information is correct, and it should be carefully remembered that if the transportation path or transportation information is not correct, it will cause huge losses. In addition, we should remember that the specific information transportation path should be analyzed specifically to ensure that each information can play its own value. In the case of data loss and theft in the process of transportation, we need to optimize the security environment of our computer network database, optimize it on the premise of ensuring the quality of transportation, and optimize our data information service technology to provide a safe computer network database environment for people to ensure their information will not be lost or stolen.

2.2 Optimize New Information Resources

The key point of optimizing the security environment of the computer network database is to optimize the new information resources. In order to prevent the database system from abnormal caused by the destruction of the security environment of the computer network database, there is no way to use the database to operate the vulnerability. When carrying out the transportation process of new information resources, it is necessary to ensure that the transportation ways and methods are correct. The information of transportation should be divided and processed centrally, and different information types should be divided and processed centrally to optimize the new information resources.

3. ON THE LOOPHOLES IN THE OPTIMIZATION OF COMPUTER NETWORK DATABASE SECURITY TECHNOLOGY

3.1 On The System Loopholes Of Database And The Loopholes Of Device Functions

When the system of the database leaks or the function of the device leaks, it will give those who are proficient in computer technology and have a bad intention to find an opportunity to steal information, which will lead to information loss and theft. The key reason for these loopholes is the production reason and application reason. There are a large number of producers of database systems like to intentionally give some loopholes when making database systems, in order to use these loopholes to monitor the actions of operators and obtain their information. Because the operators have a strong awareness of data leakage prevention, and have a large degree of trust in the database, but the version of the database is too low,

which leads to the destruction of information security. The equipment is divided into wires, chargers, processors, etc., which constitute the main components and basic elements of the computer. It is the guarantee for the normal operation of computer network database.

3.2 Countermeasures For Those Who Are Proficient In Computer Technology And Have Bad Purposes

Nowadays, the computer security environment is generally damaged by people with bad purposes, which leads to information loss and information leakage. Although the security technology of computer network database in our country is constantly improving, the technology of those who have bad purposes is also getting higher. They attack by any means for their own personal interests, so we should do a good defensive plan when necessary.

4. ON THE OPTIMIZATION SCHEME OF COMPUTER NETWORK DATABASE SECURITY TECHNOLOGY

4.1 Create a Secure Database Environment

To create a secure database environment, we need not only an optimal optimization scheme to optimize the security technology of computer network database, but also a lot of dangerous loopholes in the operation of computer database. The optimization scheme can not only protect the security environment of network objects when using the network, but also prevent the vulnerability from being attacked.

4.2 Development And Innovation Of Antivirus Software

When our computer is attacked by lawbreakers and Trojans and we have not resisted them, we will lose our information resources, which will lead to more and more serious consequences through the publicity of the network. At present, there are more and more types of computer Trojans and viruses, so we should develop and innovate powerful anti-virus software as soon as possible, eliminate the attacks of these computers and Trojans, reduce the cases of losing information resources due to virus and Trojans infection, improve the efficiency of eliminating viruses and Trojans, and carry out scanning and troubleshooting again when the first virus is found and eliminated, so as to completely eliminate viruses and Trojans Trojans.

4.3 Backup And Processing Of Information

Set up the account login on the computer, so as to prevent some lawbreakers from stealing our

information. Generally, as long as the account is logged in, you have the right to enter our system and view our information. In this way, illegal elements can be prevented from intruding into our computer. In addition, in order to prevent information loss from being unrecoverable, it is better to back up on other devices to prevent information loss from being unrecoverable in case of accident.

4.4 Add Secret Protection

In order to protect computer information resources from theft more safely, we need to add a layer of secret protection to the computer, use some special symbols to manipulate the computer, and prevent the invasion of computer viruses and Trojans. The current secret protection technologies include: anti copy technology, computer key technology, communication encryption technology, etc.

5. CONCLUSION

In the 21st century, with the advent of the computer age, although many lawbreakers attack and steal information by virus Trojan horse for their own self-interest, we have also developed and innovated some anti-virus software and secret protection to protect the security environment of our computer network database. At present, the main optimization direction of computer network database security technology is to optimize the transportation data and protect the normal transportation. Because there are many illegal elements looking for loopholes in the transportation process to attack, so optimizing the transportation data becomes extremely important. In addition, we also need to optimize new information resources, classify and centralize the information to prevent loopholes Appear, give lawless element to take advantage of.

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On the Image Aesthetics of Digital Media Art in Tv Art Programs

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Abstract: With the development of economy and science and technology, digital media art gradually highlights its own unique beauty, and the discovery and development of the law between them has gradually become the mainstream of social development, and is also the focus of attention of people from all walks of life. At the same time, innovating the expression form of quality media art and making it develop steadily in the current social environment is also to provide the basis for future art creation. This paper first describes the digital media art and television programs, and then discusses the aesthetic interpretation of the impact of digital media art, and puts forward personal opinions on the image aesthetic of digital media art in TV art programs.

Keywords: Digital media art; TV art programs; Influence on aesthetics

1. INTRODUCTION

In the era of information network, TV programs have gradually lost the main channel for people to obtain information, which also shows that the TV art programs are facing unprecedented challenges. Therefore, the relevant people put forward in the TV art programs through the digital media technology to clip video, optimize the picture and change the perspective, so as to break the traditional comfort as much as possible, and present it to the audience with a new type of digital media art, so as to promote their own development. However, in the era of vigorous development of digital media, a new problem has emerged, that is, some people in the network will deliberately exaggerate the data. For example, in the text live blog of the opening ceremony of the 2008 Beijing Olympic Games, some people said, "this performance is highly choreographed, amazing, but there has never been a panda." from a visual point of view, this There are a lot of spectacular and mythical rehearsals, but there is a lot less civilian informatization [1-4]. Therefore, when disseminating information to the people, TV literature and art should pay attention to cultural value and meet the psychological needs of the people. Only in this way can sustainable development be ensured.

2. OVERVIEW OF DIGITAL MEDIA ART AND TV ART PROGRAMS

2.1 Concept And Development Of Digital Media Technology

First of all, digital media art is a new form of artistic

expression. It contains many fields, such as nature, humanities and social sciences. It also combines several fields to highlight its comprehensive concept. Secondly, digital media art also contains a lot of content, such as art design, computer technology and graphic design, etc., which are the forms of digital media technology. Finally, the development of digital media art is inseparable from the rapid development of modern science and technology. In the prevailing environment of the network era, we are deeply in the society where there are networks everywhere. It is under the conditions of network and technology that the creation of digital media art can be highlighted. It is an inevitable trend to apply it to TV art programs. Under the intensive research of relevant TV researchers, digital media art and TV art programs are integrated from multiple collisions, so that digital media can be widely used and developed [2].

2.2 OVERVIEW OF TV ART PROGRAMS

There are four kinds of traditional literature and art programs in China, which are divided into education programs, service programs, news programs and literature and art programs. From the perspective of life, these four kinds of TV art programs have met people's needs in daily life, and brought a lot of fun to people's social life, enriching their own lives and meeting people's various needs. On the other hand, after people's material civilization has been satisfied, they gradually turn their attention to spiritual civilization, and TV art programs just spread information to the audience in a diversified form to meet their multi-directional needs, and in constant innovation, they bring different aesthetic senses to the audience [3].

3. AESTHETIC INTERPRETATION OF THE INFLUENCE OF DIGITAL MEDIA ART

3.1 Construction Of Visual Unconsciousness

The concept knowledge of visual unconsciousness was proposed by German philosopher Walter Benjamin. From the perspective of the application of digital media art, it is an art with strong comprehensive application, and its main characteristics are interactivity, audiovisual and openness. Among them, the movement and modeling of images are the core part of digital media art. By putting the picture elements in different time segments into the corresponding time, a new visual induction can be formed. TV literary and art programs convey information to the audience in the pictures composed

of different shots and various images. This different information has many styles, but also gives the audience a variety of styles. A variety of pictures are shown.

3.2 Construction Of Visual Consciousness

After the arrival of digital media, TV art programs have also got a very wide development space. Digital media has been gradually used in radio art TV, which can bring good effects to TV programs and bring unique and novel programs to the audience. While TV art programs are driven by digital media, they also bring a space-time transformation to Guanzong, so that people can see the pictures of the past or the pictures of different regions, thus highlighting the characteristics of time and space. The presentation of different time and space can bring a new visual feast to the audience. In addition, digital media can also be widely used in other fields, such as the game industry. By building a virtual character, people can enter the digital media art. While feeling rich and diverse virtual world, they can also sigh at the rapid development of science and technology in China [4].

3.3 Reconstruction From The Perspective Of Postmodern Technology

From the perspective of the market, as long as people have demand, there will be a market. With the continuous development and progress of China's economy and science and technology, people's living standards are also constantly improved. After the material life has been met, the demand for TV literary and artistic programs has been correspondingly improved. It is no longer satisfied with a single TV art program. Therefore, digital media is applied to electricity. It is an inevitable trend in the development of TV programs. For example, in the Spring Festival Gala in 2012, many works have taken a variety of forms, which have been widely concerned. There are not only real people, but also virtual digital network. The combination of the two highlights its fascinating contrast beauty. The art performance form calculated and designed by computer can give the audience a

cordial feeling, traditional. The combination of art and modern art enables the development of new enterprises while not forgetting the traditional virtues. Only in this way can we promote the sustainable development of new and old TV art programs in China. However, when new art forms are used, many people choose to abandon the traditional art forms, which will inevitably lead to the loss of some advantages of traditional art. Therefore, we should take the essence of traditional art form to its bad, and combine the new art with the old art, so as to form a perfect TV art program.

4. CONCLUSION

To sum up, in the form of television art, the development of the program itself can not represent anything, because the audience is an important factor affecting its development, which is mainly reflected in the continuous supply of power to the program to meet the needs of development. Secondly, the program can not only meet the audience's different visual needs, but also provide kinetic energy for its own innovation. Finally, the development of TV programs is inseparable from science and technology, so relevant departments should establish innovative ideas to promote the development of TV art programs in the process of continuous innovation.

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The Teaching Reform of the Practical Training Link of the Plane Composition Course under the Computer Drawing Software Aided Design: Take Clothing Major as an Example

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Abstract: Plane composition belongs to one of the basic theories in the design theory of art major, and it is the basic course of all the teaching of art design major. Before the development of computer drawing software, manual drawing is usually used as the main expression way of plane composition design, which is of low efficiency. Computer graphics software improves the efficiency of art design, but in the basic teaching of art design, the combination of plane composition and computer graphics software is not deep enough. This paper takes the clothing specialty as an example to explore how to improve the aesthetic feeling and creativity of students with the help of computer graphics software.

Keyword: Plane Composition; Computer Graphics; Practical Teaching

1. INTRODUCTION

As one of the three basic courses of art and design, graphic composition began from the Bauhaus Institute of design in 1919, and then became the professional basis of teaching and learning art and design. In our country, plane composition, as the basic course of art education, developed rapidly in the 1970s and 1980s. Before the development of computer technology, teaching methods were mainly teachers' teaching and students' hand drawing, so as to train more accurate intuition and understanding of different forms, experiment the artistic conception of various composition, experience different expression methods and the perception of beauty brought by it So as to lay the foundation for the professional design work. However, with the continuous development of information technology and computer technology, computer graphics software aided design has gradually risen, and manual drawing has gradually been replaced by computer graphics [1-5]. The application of this technology has become the main means of art design based on the foundation of composition. Computer drawing is mainly to input the parameters needed for art design in the computer by means of mathematical modeling. The computer calculates independently according to the relevant parameters, and finally displays the final design

scheme on the computer screen. The designer then selects and copies according to the needs, or even carries out the operation of photographic plate making. At present, the computer drawing software has been applied to various design fields.

Mr. ASAKURA zhisi, the first president of Asian basic modeling society and professor of Tsukuba University in Japan, once said in the plane composition of art · design: "the goal of plane composition is to fully grasp the two-dimensional modeling, that is, the important basic ability and basic ability of plane performance. Generally speaking, it is to cultivate creativity with the modern method developed by Bauhaus spirit. Although technology and knowledge are important in modeling power, creativity is still the core. In order to cultivate the most important aesthetic feeling and conception for creativity, we must learn the excellent achievements of modern art and design, and try to apply them effectively in teaching "[1] at present, scholars at home and abroad have made a series of researches on the application of computer graphics in art design. This paper reviews a large number of relevant research and classifies the relevant materials, and finds that the current research on computer graphics in art design mainly focuses on the overall application of computer graphics in the design field and the specific performance in different design fields [2], including that art teachers only use computer graphics software in the practical professional courses However, in the basic course of art design - plane composition, most of them still follow the traditional teaching methods and methods. There are few researches on how to use computer graphics software to lay a good foundation of art aesthetics for students in the basic course.

In order to lay a good foundation for students studying art and design, it is necessary to explore how to apply computer graphics software to teaching reform in the course of plane composition. In this paper, after the relevant experiments, using the experimental data, first of all, the disadvantages of the traditional teaching methods which constitute the basic course, clothing design specialty as an example, are described, and then how to improve the disadvantages is proposed. On the

one hand, the research promotes the students to master the computer drawing software comprehensively, so that the students can better use the computer drawing to express the design idea and complete the work with high quality and efficiency; on the other hand, the relevant theoretical research will supplement the improvement of art teaching quality to a certain extent.

2. METHODS

2.1 Plane Composition And Computer Drawing Software Aided Design

Plane composition is based on two-dimensional plane, with the help of three visual elements of point, line and plane, and according to certain combination rules and rules, it can produce ideal plane composition design on the basis of rational thinking and concept. The combination of graphic composition and computer graphics software aided design is the inevitable result of the development of social productivity and technology, which reflects the progress trend of the times [3]. It is decided by its own superiority that the computer aided drawing software replaces the traditional hand drawn graphic design. In essence, computer-aided drawing is a kind of computer-aided drawing mode. The operator only needs to input parameters, and the computer can draw automatically, which has a powerful man-machine dialogue function [4]. According to the drawing method and principle, computer drawing software can be classified into image processing software and graphics processing software [5]. The effect of image processing software is real and natural, and Adobe Photoshop is the most representative image processing software. CorelDRAW, a graphics processing software, can change the size of the graphics at will with the help of digital description of the graphics object. Although the rendering effect is not as good as the image processing software, it is very suitable for the basic training of graphic composition design.

2.2 Comparison Method

This paper compares the traditional expression method of plane composition hand drawing with the method of computer aided design, and evaluates it from three aspects of time, quality and perfection to confirm which method is more helpful to students' learning.

2.3 Questionnaire Method

After the comparison of the two different means of expression, the students were investigated in the form of questionnaires about which means of expression were more acceptable and more interested, to confirm which means could enhance students' interest in learning.

3. THE EXPERIMENT OF PLANE COMPOSITION WITH THE AID OF COMPUTER DRAWING SOFTWARE

In this paper, four classes of students as the main object to do a group of experiments: four classes, a total of 96 students participate in the experiment. In the experiment, the students were divided into two

groups according to the administrative class, one was hand-painted graphic design, the other was computer-aided graphic design, which tested the graphic design under different technical means.

The purpose of the experiment: to test which method is faster and better to finish the homework under two different technical means; to test which method is better to stimulate students' interest in learning under two different technical means.

Experiment method: the quantity and quality of the homework completed by the students using different technical means in a fixed time were compared and evaluated, and the recognition degree of technical means was investigated by questionnaire after finishing the homework.

Experimental results: the experiment shows that in 4 class hours, the hand drawing group completed only one assignment, and the quality of the assignment was not high; the computer drawing group completed 6 assignments on average, and the quality of the assignment was very good. The results of the questionnaire show that only 2% of the students can accept hand drawing as a method of doing homework, and the other 98% of the students think that using computer drawing software to draw the production industry is fast, efficient and of good quality, which greatly improves their interest in learning.

4. THE TEACHING REFORM OF PLANE CONSTRUCTION IN PRACTICAL TRAINING

Today's students are indigenous people in the digital era. Only when the teaching methods and means of plane composition are combined with digitalization can they be more suitable for the thinking mode of modern students. In particular, the means of expression should use a lot of computer-aided design, not limited to hand drawing. Compared with hand drawing, computer software design is easy to operate and store, which saves a lot of time. At the same time, it can quickly design a variety of schemes, the process of comparing the stored schemes, the intuitive presentation of the teacher's explanation, and enhance the students' ability to perceive beauty. For example, in the teaching of plane composition of clothing design major, when students design basic shapes, they can use tools such as welding, trimming and intersection in CorelDRAW toolbox to quickly complete the addition and subtraction of basic shapes and get new basic shapes. In this process, students have a lot of time to experience the characteristics and meanings of each shape, improve the ability of aesthetic perception and artistic conception. For example, in the practical training of bone lattice design, students can draw bone lattice with CorelDRAW, which can quickly experiment the intuitive effect of various sequences and perceptual arrangement, and enhance cognition. After such practical training, not only all kinds of sequences are no longer a noun, but also students can design new sequence arrangement and improve their

creativity.

5. CONCLUSION

Computer graphics software aided design provides a new technical means and method for the practical design of graphic composition, which not only improves the design efficiency of graphic composition, but also improves the accuracy of design data, and also makes the design have a new performance, promoting the innovation of graphic composition design. However, there are still many problems in the current computer-aided design of graphic composition design. The most important problem is how to express the beauty of various graphic composition with computer-aided design software. A thorough and detailed combination of the two will lay a solid aesthetic foundation for art design students.

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Current Situation and Development Trend of Multi System Fusion Data Analysis for Coal Mine Safety Monitoring

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Abstract: In recent years, China has been paying more and more attention to the safety production of coal mine industry. This paper introduces the implementation platform and future development trend of multi system integration of coal mine safety monitoring, with a view to better predict various disasters and accidents for staff, and provide a safer working environment for coal miners, hoping to inspire readers.

Keywords: Coal mine; Safety monitoring; Multi-system fusion data analysis.

1. INTRODUCTION

In July 2013, the plan of upgrading coal mine safety monitoring system clearly proposed that in order to further improve the accuracy of coal mine hazard prediction, the coal mine should strengthen the analysis and application of data. And in the monitoring process, a variety of systems and networks are integrated to achieve the goal of real-time sharing of coal mine monitoring information and reducing the incidence of coal mine accidents.

2. THE IMPLEMENTATION PLATFORM OF MULTI-SYSTEM FUSION OF COAL MINE SAFETY MONITORING

2.1 Introduction To The System Of Coal Mine Safety Monitoring Fusion

With the development of science and technology, coal mine safety monitoring integration system includes emergency linkage, information system integration, GIS and monitoring system integration. At present, in order to better understand the specific situation of the coal mine, the coal mine safety monitoring multi system fusion platform is different from the traditional monitoring system with relatively single function. It can not only realize the power monitoring function, but also has the functions of positioning the mining personnel and monitoring the equipment of the mining area in real time [1, 2].

2.2 The Development Status Of Coal Mine Safety Monitoring In China

The geological environment of most coal mines in China is complex, and in the process of coal mining, it is easy to cause all kinds of safety accidents due to various factors. In order to reduce the harm caused by coal mine accidents, the coal mine can protect the

personal safety of workers by setting up safety monitoring, but the development of safety monitoring in coal mines is different due to factors such as the different size of coal mines in China, the different amount of investment funds, and the different horizontal lines of production technology and production equipment. Specifically, first of all, because of the complex environment inside the coal mine, in order to ensure the monitoring effect, the safety monitoring position installed in the coal mine is relatively dispersed, and by the long-term environment in the coal mine to maintain high humidity, dust, electromagnetic interference and other factors, monitoring sensors may receive the signal error, which makes some safety monitoring will appear false alarm phenomenon. Secondly, the "Coal Mine Safety Regulations" clearly require that the safety monitoring in the coal mine to maintain a continuous operation of 24h state, if the power supply in the coal mine suddenly stopped, the backup battery for safety monitoring should also be able to provide at least 2h of operating current for monitoring. However, most of the safety monitoring applied in coal mines still use direct current and AC as the main way of energy supply, some of the backup batteries in coal mines because of a long time no energy supply and replacement, has been unable to provide energy for safety monitoring in the case of power interruption. Finally, some manufacturers of multi-system safety monitoring system self-contained system, cannot be connected with other manufacturers of equipment, and by the coal mining industry more complex work conditions, the application of a wide variety of equipment in the coal mine, in the system cannot be regularly connected, increased the difficulty of work within the coal mine.

3. COAL MINE SAFETY MONITORING MULTI-SYSTEM INTEGRATION OF FUTURE TRENDS

3.1 Towards All-Round Monitoring Direction

Although the multi system integration of coal mine safety monitoring system can real-time monitor the environmental safety parameters in the coal mine, and according to the data of gas concentration and dust concentration in the mine, it can control the opening and closing of equipment switches in the mine. But this monitoring method, compared with the

comprehensive detection of the situation inside the mine, there is still a certain gap. Therefore, in the future development process, the relevant staff should be based on the monitoring of the coal mine environment, and at the same time measure the data indicators in the mine, and then analyze the data, so as to clarify the current environmental status, and in the case of possible safety accidents, design the corresponding evacuation route and rescue plan to ensure the safety of miners. In addition, in the face of the relatively fixed position of monitoring equipment, the measured data range is small, the relevant staff can expand the coverage of monitoring by making the monitoring system develop towards the direction of network, so as to lay a good foundation for the safety production of coal mine.

3.2 Moving Towards Improving Sensor Performance

Based on the analysis of the existing mine monitoring sensors in the market, it is found that most of the domestic mine monitoring sensors have the disadvantages of poor stability and short service life. At the same time, the types of domestic mine monitoring sensors are not complete, there are more sensors used to detect environmental parameters, and the number of sensors to detect the running state of equipment is small, which brings certain security risks to the environmental monitoring of coal mines. In the face of the above situation, in the process of improving the quality of coal mine monitoring, relevant staff should produce sensors with high standards and strict requirements, so as to improve the quality of sensors, and design corresponding sensors according to the actual needs of coal mine, so as to lay a good foundation for the improvement of coal mine safety monitoring and control system performance.

3.3 Towards High Performance Of The Product

Stability and reliability are the key factors for the normal use of coal mine safety monitoring equipment. The stability of monitoring equipment not only includes the external factors such as the operating environment, magnetic field interference and maintenance cycle, but also includes the internal factors such as chip integration degree and software design of monitoring equipment. In recent years, with the continuous development of electronic chip, ARM technology has been improved. In order to further improve the reliability of coal mine safety monitoring equipment, relevant staff should be fully aware of the current environmental conditions in the coal mine. By installing the built-in rechargeable battery for the monitoring equipment, this paper aims to solve the problems that may occur in the operation of the monitoring equipment, so as to ensure the stability of the safety monitoring in the coal mine. In addition, in the face of the increasing level of digital signal

processing technology in China, the relevant staff can convert the underground information into digital signal and transmit it to the corresponding staff through the digital communication equipment such as sensors, substations, switches, etc. Specifically, the relevant staff only need to install the monitoring equipment in a certain position in the coal mine. After the monitoring equipment captures a certain data information in the mine, the information is transmitted to the central station, and then the central station identifies the problem type and location information transmitted by the monitoring equipment, and carries out a series of operations such as alarm, power failure, power restoration, etc., so as to improve the intelligent degree in the coal mine.

3.4 Moving Towards The Unification Of The Agreement

The integration of safety monitoring system and other equipment data system is the inevitable result of the development trend of coal mining industry at this stage. Affected by the different monitoring equipment system produced by different manufacturers, the safety monitoring in coal mine cannot fully play its role. In order to solve this problem, the manufacturers of safety monitoring can standardize and unify the data communication protocol of mine equipment by communicating with other manufacturers, improve the compatibility of safety monitoring system, and ensure that the monitoring system can be integrated with the communication systems such as broadcast and wireless telephone. Ensure that when the coal mine safety problems, safety monitoring can use the communication system to achieve real-time information release, unified scheduling of miners.

4. CONCLUSION

In the current coal mine operation, improving the safety of operation has become the inevitable requirement of the development of coal mine industry. In recent years, with the rapid development of Internet technology, in order to enable people to better understand the specific situation of the mine, data analysis, data exploration and other new scientific and technological concepts have been integrated into the monitoring system of the coal mine industry, so as to achieve the purpose of improving the effectiveness of the coal mine safety system.

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Establishment of Cold Chain Distribution Route Optimization Model in Big Data Environment

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Abstract: Through sorting out the research data and background, establishing the corresponding mathematical model is the fastest way to solve the problem. After the model is established, Matlab is used to program and the improved genetic algorithm is used to solve the problem. The optimal solution can be obtained by selecting operators, crossover operators and mutation operators with large probability. Then, in order to verify the accuracy of the model, the rationality and adaptability of the model are determined through case analysis.

Keywords: Big data; Cold chain distribution; Path optimization; Matlab

1. INTRODUCTION

With the popularity of the Internet, logistics has become an indispensable part of human life. Compared with other countries, China's logistics industry has formed relatively late, and has not yet formed a relatively complete service process. As an important branch of the logistics industry, cold chain logistics has attracted close attention from all countries. Based on the premise of resource optimization, this paper establishes a mathematical model and applies genetic algorithm to solve the problem.

2. DESCRIPTION OF COLD CHAIN DISTRIBUTION

For the distribution problem to explore the corresponding assumptions, the hypothetical conditions need to meet most of the distribution situation, so as to solve the public problem. Firstly, the location of the distribution starting point (also known as the distribution center) is fixed and known, the location of the goods to be delivered is known, and the total mass of the goods to be distributed is known. Secondly, the interval in the distribution process is known, the vehicle models of food delivery are known, and the time interval of goods delivery is known [1-3]. The final assumptions are related to the form of distribution, including the routing of distribution vehicles starting from the distribution center, entering each distribution demand point and then returning to the distribution center; the vehicles for distribution are loaded with multiple goods to ensure that one vehicle can be sent to multiple locations; the vehicles required for distribution are enough to avoid the problem of goods detention; the actual load of vehicles is less than

or equal to that of vehicles. In the process of distribution, the goods in a community or a street are uniformly distributed by one vehicle, and there will be no duplication of vehicle routes. Only when the above assumptions are satisfied can we consider how to achieve the optimal distribution path under the premise of resource integration.

In the distribution problem, the main research is the optimal problem between the total cost and the path, so after assuming the given cost, first of all, the inherent cost of the vehicle (such as the driver's employment fee, etc.) is inevitable, followed by the transportation cost (fuel cost), and then the loss cost of food or goods in transportation (such as food deterioration or packaging rupture, etc.) Because the research is the cold chain logistics, so the cost of food refrigeration is also indispensable. Finally, the penalty cost caused by the delivery of goods beyond the time interval constitutes the total cost of cold chain logistics. The goal of the research on distribution problem is to use the optimal path for distribution with the minimum total cost [4-6].

Customer satisfaction will also affect the cost of the enterprise, so when considering the composition of the cost, we should also add the additional cost caused by customer satisfaction. Customer dissatisfaction is mainly caused by two situations. The first is in the case of hard time window (hard time window means delivery outside the inherent time interval is not allowed, there will be cost loss), the degree of customer satisfaction decreases and the cost is increased; the second is under the condition of soft time window (for example, soft time window refers to delivery outside the inherent time interval and compensation delivery) Customer's satisfaction can be restored by punishment. After adding this situation, the model of optimal total cost and path will be more accurate.

3. ESTABLISHMENT OF COLD CHAIN DISTRIBUTION MODEL

The model established in this paper mainly studies the path optimization of cold chain logistics based on resource integration, that is, cost minimization, path optimization and cost minimization can be started from the following aspects:

Inherent Cost Of Vehicle:

The inherent cost of vehicles is almost certain in the

process of distribution, such as the wages of drivers, depreciation of repair parts of vehicles, etc., but does not include the maintenance costs when the vehicles are idle in the distribution center. The specific cost expression is as follows: $C_1 = \sum_{u=1}^U \sum_{k=1}^{uk} g_{uk} f_{uk}$

Cost Of Vehicle Transportation:

The transportation cost of the vehicle is mainly the fuel cost of the vehicle, which is directly proportional to the mileage. The specific cost expression is as follows:

$$C_2 = \sum_{u=1}^U \sum_{k=1}^{uk} \sum_{i,j=0}^n d_{ij} c_{ij}^{uk} x_{ij}^{uk}$$

The Cost Of Food Loss In Transportation:

The loss of food in the transportation process is inevitable, including food deterioration or packaging damage in the process of transportation and the cost of food deterioration caused by opening and closing the door when unloading the goods. Because the cooling temperature in the car is fixed, the outside temperature will alternate with the temperature inside the car during the opening and closing process, which will lead to the increase of the temperature in the car and then change the food. The suitable temperature of the material is deteriorated.

The index function of the degree of food spoilage is as follows:

$$Z_{(t)} = e^{-\theta t} Z_0$$

Among $Z_{(t)}$ indicates the quality of food at time t , Z_0 indicates the initial condition of the food, θ indicates the rate of food spoilage, t indicates the time of transportation.

Combined with the above, the specific cost expression is:

$$C_3 = \sum_{u=1}^U \sum_{k=1}^{uk} \sum_{i=0}^n y_i^{uk} N [q_i (1 - e^{-\partial_{u1}(t_i^{uk} - t_0^{uk})}) + Q_i (1 - e^{-\partial_{u2} t_{si}})]$$

Cost of refrigeration equipment:

In the process of transportation and distribution of food in cold chain logistics, the environmental requirements are stricter. It is necessary to ensure that the temperature in the car is suitable for the preservation of refrigerated and frozen food. Therefore, in terms of cost, the cost of cold chain logistics is higher than that of ordinary logistics, and the cost of refrigeration equipment is mainly the use and consumption of refrigerant. The specific cost expression is as follows:

$$C_4 = \sum_{u=1}^U \sum_{k=1}^{uk} \sum_{i=0}^n P_u M_{uk2} t_{si} y_i^{uk} + \sum_{u=1}^U \sum_{k=1}^{uk} P_u M_{uk1} (t_f^{uk} - t_0^{uk})$$

To sum up, the model of cold chain logistics distribution path optimization based on resource integration can be expressed as follows:

$$Z = \text{Min}(C_1 + C_2 + C_3 + C_4) = \text{Min} \{ \sum_{u=1}^U \sum_{k=1}^{uk} g_{uk} f_{uk} + \sum_{u=1}^U \sum_{k=1}^{uk} \sum_{i,j=0}^n d_{ij} c_{ij}^{uk} x_{ij}^{uk} + \sum_{u=1}^U \sum_{k=1}^{uk} \sum_{i=0}^n y_i^{uk} N [q_i (1 - e^{-\partial_{u1}(t_i^{uk} - t_0^{uk})}) + Q_i (1 - e^{-\partial_{u2} t_{si}})] + \sum_{u=1}^U \sum_{k=1}^{uk} \sum_{i=0}^n P_u M_{uk2} t_{si} y_i^{uk} + \sum_{u=1}^U \sum_{k=1}^{uk} P_u M_{uk1} (t_f^{uk} - t_0^{uk}) \}$$

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$$\sum_{u=1}^U \sum_{k=1}^{uk} P_u M_{uk1} (t_f^{uk} - t_0^{uk})$$

Z represents the minimum cost;

$$\sum_{u=1}^U \sum_{k=1}^{uk} y_i^{uk} = \begin{cases} 1, & i = 1, 2, 3, \dots, n \\ M, & i = 0 \end{cases}$$

This formula indicates that the number of vehicles sent to the center cannot exceed the total number of vehicles M ;

$$\sum_{j=1}^n x_{ij}^{uk} = \sum_{j=1}^n x_{ji}^{uk} \leq 1, i = 0$$

This formula represents the transportation route of the vehicle, that is, the vehicle must return to the vehicle distribution center after transporting the goods;

$$\sum_{u=1}^U \sum_{k=1}^{uk} \sum_{i=0}^n y_i^{uk} = n$$

This formula indicates that after the vehicle starts from the distribution center, the total number of customer demand points reached is n ;

$$\sum_{i=1}^n y_i^{uk} q_i \leq Q$$

This formula indicates that the load of the vehicle shall not exceed the maximum carrying capacity of the vehicle Q ;

$$t_j^{uk} = t_i^{uk} + t_{si} + t_{ij}^{uk}$$

This formula shows that after the U-type car completes the service at the I demand point, it goes to the j demand point to ensure the consistent delivery time.

4.SOLUTION AND ALGORITHM OF COLD CHAIN MODEL

The main workflow of genetic algorithm:

4.1 Set the parameters and code: code n delivery points randomly and sort them according to the size, and then distribute the goods from left to right until the total weight of the goods is less than or equal to the maximum carrying capacity of the vehicle, record times i and breakpoint position $i-1$; the delivered goods do not stack again, the second vehicle is the same as above, then load the goods, record the times j and breakpoint $i+j-1$, Clear the accumulated quantity; add o element (representing the distribution center) between each vehicle and at the end of the vehicle transport string, which means that the vehicle starts from the distribution station and then returns to the distribution station.

4.2 Generation of the most initial population and fitness evaluation: selecting an appropriate initial population is the key and premise of the problem, so the selection of the population is also crucial. Selecting the population with small sample size will cause error in the probability rate, and selecting a larger population will slow down the iteration speed and affect the progress. Therefore, the initial population selected in this paper is 100; the fitness evaluation is mainly for screening species. The smaller the total cost, the smaller the fitness, and the better the result of the solution. The fitness function is calculated by the total cost function Z .

4.3 Selection, crossover and variation:

Crossover is mainly realized by gene recombination operator in partheno genetic algorithm, in which multi-point gene transposition operator is used.

Mutation is mainly operated by inversion mutation operator.

Loop iteration, the output selects the optimal value.

The iteration is 100 generations. When the number of iterations reaches 100, it stops running. Finally, the smaller the fitness value is, the individual optimal solution, that is, the result of path optimization.

5.CONCLUSION

The improved genetic algorithm is used to solve the path optimization problem. The relative optimal solution is selected by selecting the parent chromosome, and the selected gene is optimized again in the cross chromosome, and then the inversion mutation operator is used to operate, and the optimal path solution is obtained after repeated iterations.

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Analysis Of 2018 Victoria's Secret Fashion Show

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Abstract: This article will choose 2018 Victoria's Secret (VS) Fashion Show as a case study, and discuss its organization, development and mission as well as analyse the challenges and issues it faced. Based on the research of its brand strategy and major activities, this article analyzes the factors of its success and the reasons of its gradual decline, while providing effective reference and suggestions related to activities' marketing for other fashion shows.

Keywords: Victoria's Secret Fashion Show; Fashion show; Marketing; Brand strategy; Brand sponsorship

1. INTRODUCTION

The VS Fashion show is a fashion marketing event and performance, which has made great success in the past few years since the 90s. It has been regarded as a very successful marketing method for fashion lingerie brand Victoria's Secret. However, the 2018 fashion show is exceptional. Its global audience number has set a record low, only one-third of the past. Even after the failure of this year's fashion show, the brand announced to cancel the 2019 annual fashion show. The fantastic fashion show suddenly fell to the altar; the behind reasons are worth to discuss and study.

2. ORGANIZATION AND DEVELOPMENT

The development of fashion has long been intertwined with theatre (Steele 1988). Troy (2003) pointed out that fashion is a semiotic language to construct cultural meaning; it can transcend society and class. With the development of the times derived from a variety of series of fashion exhibitions, individual designers will hold their own fashion events (Drengner et al. 2008; Duggan 2001). Sometimes the events even cooperate with the front-line stars on the same stage, followed by extensive international media attention and coverage (Williams et al. 2013; Jackson 2013). The fashion week concept has been widely spread all over the world, eager to promote the self-connection between its fashion industry and its brand and fashion design (Williams et al. 2013: 6). The organizers tried to create fashion events which counteract the crassness related to the apparent promotion of commodities (Troy 2003). After using the live mannequins to display clothing, people realized the advantages of this way, and the fashion exhibition has evolved into a fantastic fashion performance (Evans 2011). This style also reflects the popular fashion culture [1-8].

Victoria's Secret Fashion Show, an annual show sponsored by and featuring lingerie and sleepwear

brand Victoria's Secret (founded in 1977), started since 1995. At first, models wear slinky with handbags to slips down the runway, and then the unique 'VS angel' was created (Willett et al. 2019). The show began to invite stars like Rihanna (Evans 2011), which better attracted the attention of international media, so as to achieve the goal of product promotion. Shows have gotten bigger Since 2012. Probably for attracting more attention, influencers were invited as models, the show quality declined. The 2019 show was cancelled (Hanbury 2020) [9-15].

3. MISSION AND VISION

Vision and mission are integral parts of the strategic management of an organization, which emphasizes the establishment of a shared sense of purpose for the team (Taiwo Lawal and Agwu 2016). Tarnow (2001) pointed out that the company's mission or vision has the same function and significance as the team jersey. Mission, like the anchor of strategy, reveals the reasons for the existence of an organization, which is the standard strategic orientation of the organization (Erkan 2008). The vision tends to predict and look forward to the future and prepare for innovation and reform (Powers 2012). It usually represents the unique characteristics of an organization and conforms to the corporate culture (Ozdem 2011). It can be said that vision custody colour and beauty of destiny (Oyedepo 2015). The mission statement is generally associated with the organization's values, customer needs and vision. It can be changed while vision statement is generally compatible with the organization's values and culture and needs a clear and concise description of the future and aspirations, so as to attract the attention of not only employees, customers and suppliers. Content changes should be minimized (Taiwo et al. 2016). Of course, if some changes are needed in the business, both mission and vision should be updated [16-26].

As the show's name suggests, as an exclusive brand show, its mission is based on the brand. Victoria's Secret is committed to building the best fashion brand in the world and providing an engaging customer experience, so as to promote long-term loyalty and sustainable growth for our shareholders (Mission Statement Academy 2019). The Fashion Show is trying to combine pop culture, celebrities, and luxury goods to create an attractive aesthetic and transform it into a store selling capability (EVENTMB STUDIO TEAM 2019). It also adjusted their goals in preparing

for the 2018 show into athletics, not only aesthetics (Mazzo 2018), which might due to the changes of public aesthetics these years [27-37].

4.FUNDING AND SPONSORSHIP ISSUES AND CHALLENGES

In order to hold an event successfully, it needs enough financial and human resources. In order to get better benefits, it also needs enough social attention. Therefore, it is essential to obtain financing and sponsorship (Lacey and Scheinbaum 2013). Sponsorship could help create brand awareness and loyalty, as well as a brand experience (Cliffe and Motion 2005). A suitable sponsorship can benefit both the event and the sponsor while the sponsees create meaning through their events, and the sponsors contribute to a robust, advantageous and unique association established in the activities (Henseler et al. 2009). Even sponsors with good review will be useful to increase the intention to buy sponsors' products (Close et al. 2006). However, once the image of the sponsor is weak, the event will also be affected, especially the fashion events that attract plenty of media attention. So the choice of sponsors is critical and needs to be very careful (McCracken 1988; Wilson et al. 2005). Besides, over the past two decades, sponsor events have increased dramatically; it could also be an issue of whether the activities can successfully find suitable long-term sponsorship (Walker et al. 2011).

Same as the previous years, the 2018 Fashion show's clothing sponsor and main source of funding is its brand Victoria's Secret. The show had nail sponsor LeChat (a cutting-edge fantastic nail brand with over 20 years history), models will slip down the runway wearing the LeChat Dare to Wear Nail Lacquer collection to fit their clothes (Nailpro 2018). The show got Queen Elizabeth II-approved makeup artist Charlotte Tilbury as make-up sponsor (British Vogue 2018). Swarovski is still a partner of VS fantasy baby collection (Swarovski 2018). These sponsors with good image can directly benefit the fashion performance. It has social media sponsorship (such as Instagram, Facebook and Twitter), also it invited influencers to be models in order to promote the show to increase influence and attention (Ramakrishnan 2019). However, some influencers' unprofessionalism led to the decline of activity quality, which caused the loss of viewership and reputation (Munzenrieder 2018) [30-41].

5.TARGET AUDIENCE AND AUDIENCE DEVELOPMENT

Nightingale (2006) mention that for brands or organizations, target audience could help them create more targeted products and activities to obtain the maximum benefits of the market and reduce unnecessary losses. Meanwhile, they also seek out prospective customers and try to build a two-way lasting relationship with each audience (Masterman

and Wood 2006: 124). To develop audience, organizations could connect culture-related projects to a particular community (Masterman and Wood 2006: 216). With empathy strategies and emotional strategies (Masterman and Wood 2006: 72), especially events, they can increase the audience's engagement, creating a tangible experience that includes all senses, not just visual and verbal (Masterman and Wood 2006: 230). The VS Fashion Show is targeted on VS prospective consumers, models, and medias. In past few years, the audience for the VS fashion show has been 61% women, 39% men (Roberts 2018). However, 2018's viewership declined (Chart 1) due to the decreased quality and inappropriate speech (Munzenrieder 2018). VS should increase and keep the quality of the show and use emotional strategies (cater to public aesthetic) to attract viewers. (as Figure 1)

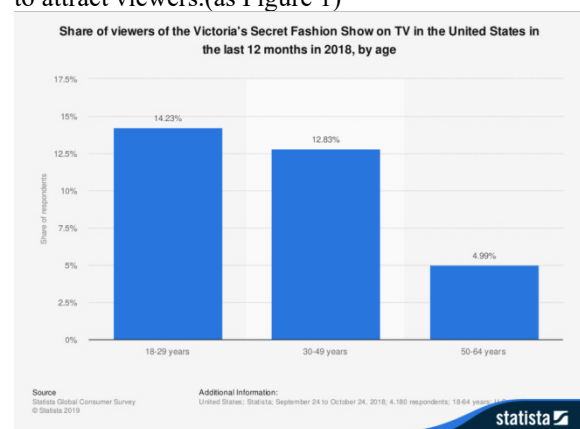


Figure 1. The statistical figure

6.SITE SELECTION AND MANAGEMENT IMPACTS AND ISSUES.

Location theory plays a vital role in various research fields and has developed into a systematic theory (Meng 2011). Weber (1982) and Christaller (1966) considered the economic, geographical and tourism factors, and proposed a solution model of how to determine the optimal location for economic events. As for the events venues' management, it might be affected by nature and type of activities, physical aspects of the venue as well as the duration of the event (Hassanien and Dale 2011). Events should select venue according to activity category to attract more attention and ensure the facilities and services of the site are perfect, because it may directly affect the experience of audiences (Smith and Smith 2008).

2018 VS Fashion Show was located in Pier no.94, New York and switched this year from CBS to ABC (Munzenrieder 2018). In the past, VS had held the show in Florida, Paris, Shanghai with pink mainstay, more creative runway and better lighting (MAU 2014), and now back to New York. It may due to the continuous decline in ratings in recent years (Willett et al. 2019), only choosing the first host city is the most economical and insurance choice.

7.CONCLUSION

It can be seen that VS fashion show has a glorious history. With the label of "sexy, luxury" in the past 20 years, it has attracted lots of audiences. However, in recent years, due to the addition of some influencer sponsors and the mission that did not change according to the changing public aesthetic in time, the quality has declined and audience is losing. It used to be successful, but its cancelled 2019 show shows its sinking.

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Discussion and Analysis of Chinese And Foreign Cultural Elements in Tourism Products

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Abstract: The results show that the design of tourism products with Chinese and foreign cultural elements as the core has become the focus of attention from all walks of life. Based on this background, based on the precise summary of the application characteristics of cultural elements, this paper discusses and analyzes the application of elements from the application principles and forms, hoping to inspire relevant personnel and make the tourism products designed in the future have ideal social value.

Keywords: Tourism industry; Product design; Chinese and foreign cultural elements.

1. INTRODUCTION

Cultural elements play an irreplaceable role in the design of tourism products. On the one hand, designers can make use of cultural elements to highlight the tourism characteristics; on the other hand, cultural elements can also strengthen the fetters of tourists and tourist destinations. At present, there is still a large space for the personnel engaged in tourism development and product design in the application of cultural elements. Based on this background, this paper explores the problems and solutions of tourism product design.

2. FEATURES OF THE APPLICATION OF CHINESE AND FOREIGN CULTURAL ELEMENTS

As we all know, tourism product is a kind of special commodity. It emphasizes that tourism resources should be taken as the breakthrough point, all-round combination of tourism elements, and the design and production should be combined with the demand of tourist source market. Based on this, when cultural elements are applied, the following characteristics are often intuitively expressed:

One is multi-dimensionality. Tourism products contain a lot of cultural information, to meet the multi-dimensional approach based on the multi-dimensional characteristics of the performance of the conditions. On the one hand, cultural elements can be fully integrated with tourism activities and tourism resources, on the other hand, in the implementation of related work, designers should do micro-macro combination, for example, the market demand and cultural elements to complete the development of tourism routes related work.

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The second is geographical. Any nation has a fixed range of life and activities, reflecting the elements of national culture, naturally have personalized characteristics exist, which is the visual embodiment of regionality. The people living in the grasslands and the people living in the mountains, the culture has often been significantly different, therefore, in order to integrate cultural elements into tourism products, regionality will become an inherent attribute of products.

The third is uniqueness. The uniqueness of product design is also a part that cannot be ignored. The reference to "uniqueness" refers mainly to the inherent characteristics of cultural elements, whether it is the multi-dimensionality, regionality, or the inheritance to be mentioned above, which is closely related to uniqueness. Take qingyan ancient town as an example, walking in the streets of ancient town, handicrafts, special snacks are very common, in addition, Hmong clothing and silver ornaments are also everywhere. All of these products can be used to express uniqueness.

The fourth is inheritance. Whether it is Chinese and foreign culture, or product design, there is heritage, cultural heritage, so that the nation has a bridge forward and rising ladder, in-depth excavation of cultural heritage, can make tourism products have more rich content, cultural elements of the participation of ways and forms, usually become very rich. To sum up, to inherit as the starting point, to complete the design of tourism products related work, not only can make the product more perfect, but also has a prominent role in national characteristics, which need to be paid attention.

3. THE APPLICATION STRATEGY OF CHINESE AND FOREIGN CULTURAL ELEMENTS

3.1 Apply the Principle

After understanding the characteristics of Chinese and foreign cultural elements, designers should combine design principles to design tourism products.

First of all, at the moment when cultural elements are gradually known to people, the development of tourism industry is not balanced, and the core elements of any country and national culture are cultural elements. In the design of tourism products, different elements often correspond to different degrees of participation. Only through scientific reference can the participation degree of elements be balanced.

Taking Kashgar region of Xinjiang as an example, quantitative research on tourism products can enable relevant personnel to have a comprehensive and accurate understanding of the factors affecting the authenticity of products. At this stage, the indicators of the evaluation of the authenticity of cultural elements, mainly diet, architecture, clothing and relics, in the design of tourism products, the above elements show a more obvious difference in participation.

Secondly, the reference is to pave the way for innovation, it can be seen that there are reference principles exist, there must be innovation principles corresponding to it. For product design, the content emphasized by the principle of innovation can be summed up as two main points: first, drawing on existing design experience, the use of existing Chinese and foreign elements to complete the work of product design;

In the end, the design personnel should pay attention to the national characteristics, which should be different from the national characteristics. Specifically, it is based on typical elements to design typical products and promote local tourism, which is also the responsibility of tourism products.

3.2 App Form

Combined with the application principles summarized above, it can be seen that in order to use Chinese and foreign cultural elements for tourism product design, the alternative forms, mainly single participation and multi-participation. Single participation requires designers to identify representative elements. Multi-participation is considered in two ways: one is multi-element for a single product, and the other is single-element for multiple products. In actual design, most designers consider multi-participation to be the first choice because multiple elements are more intuitive to cultural characteristics than a single element.

Take the tourist products shopping center opened in Heilongjiang, for example, which sells tourism products, usually divided into supplies, food and handicrafts, all three types of products have obvious cultural characteristics. Visitors to the area can experience the customs and customs of the Northeast, but also understand the Russian craft and customs, through the selection of tourism products, to draw a successful end to the tour. It can be seen that in the design of tourism products, designers should consider the cultural elements of the region, as far as possible through the product, the regional characteristics to

others to communicate.

3.3 Directions Of Development

Throughout the market of existing tourism products, generally faced with the problem of brand deficiency, in a simple way, is not branded content into the design planning. For example, the representative foods of Inner Mongolia and Qingyan ancient town are beef jerky, but there are significant differences in the production process, only to distinguish between brands, to ensure that the tourism characteristics of the above-mentioned areas are fully presented.

In addition, the use of Chinese and foreign ethnic elements, the design of tourism products, the purpose is to promote regional culture, at this stage, most designers have recognized the importance of cultural elements to product design, but did not invest due energy and time in publicity. Domestic existing tourism products, tourism can play a publicity role in the product, only to the impression of Liu Sanjie as the representative of a very small part. This also shows that in the future, how to give tourism products should be publicity, will become the focus of people's attention.

4. CONCLUSION

From what has been described above, there are three issues that need to be paid attention to in order to make Chinese and foreign cultural elements shine brilliantly in the field of product design. Firstly, the characteristics of element participation design; secondly, the existing participation forms; thirdly, the future development direction. Only when the answers to the above questions are clear, tourism products can be given full play. The practical significance of this research topic is self-evident.

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Research on The Legal Problems of Supply and Demand in The Use of Mine Water

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Abstract: In the context of sustainable development, the legislation of renewable resources can be developed. The legislation of rational use of renewable resources is conducive to the realization of sustainable development. For the realization of sustainable development strategy, the law provides a strong guarantee. This paper analyzes the necessity of perfecting mine water resources with the help of relevant laws. Based on the legislation of mine water utilization, it discusses the theoretical basis related to it for reference.

Keywords: Mine water; Sustainable development; Comprehensive utilization legislation; Theoretical basis

1. INTRODUCTION

According to the theory of sustainable development, in order to achieve the goal of sustainable development, it is necessary to constantly improve its resources and environmental conditions. In addition, in order to achieve this goal, it is also necessary to regulate the behavior of social members with the help of theoretical requirements, so as to promote the long-term development of this theory.

2. THE NECESSITY OF PERFECTING MINE WATER RESOURCES WITH THE HELP OF RELEVANT LAWS

2.1 The Necessity Of Legislation On Comprehensive Utilization Of Mine Water

For domestic resources, from multiple perspectives, such as utilization and ownership, the situation is not very ideal. In some cities in China, the situation is less optimistic, regional resources are difficult to meet the needs of the growth of traditional industries. Nowadays, more pollution is produced in production, and the consumption of energy is high. This production mode has a great impact on the regional ecological environment [1, 2]. At present, the government pays more attention to sustainable development, and integrates this development idea into every industry and every region. Comprehensive utilization of mine water can improve the utilization rate of resources, and increase the utilization rate of waste water in enterprise production. To promote ecological industry, adopt cleaner production mode, and constantly improve the utilization rate of resources are all in line with sustainable development, which has a certain efficiency and harmony. In order to ensure the security of economy and resources, as well as the

implementation of resource strategy, comprehensive utilization legislation is of great significance.

2.2 The Requirements Of Carrying Out The Scientific Outlook On Development

As for the economic development path, its essence is catch-up industrialization. There are some complexity and particularity in the environmental and resource issues. The continuous induction of development issues at home and abroad, the accumulation of relevant experience and lessons, promote the birth of a new scientific outlook on development. In the view of scientific development, people-oriented is the essence, and all-round sustainable development is the fundamental content. Based on the concept of people-oriented, to achieve the goal of comprehensive development of people, and constantly improve the quality and level of people's life. We should always abide by the five principles of overall planning, effectively coordinate various contents, such as productivity and economic base, and effectively solve the relationship between economic growth and environmental protection. The occurrence of environmental problems mainly stems from the incorrect development mode, even including the lack of clear economic development goals. In order to deal with these problems, it is necessary to adjust the economic activities, maintain the relationship of material exchange, adjust the mode of economic growth properly, and make comprehensive use of mine water resources in the development process.

The effective use of mine water resources, to a certain extent, can reduce the waste of resources, reduce the pressure on the environment and resources, change the mode of economic growth, better solve the employment problem, and fully embody the scientific outlook on development.

3. BASED ON THE LEGISLATION ON THE USE OF MINE WATER, THE THEORETICAL BASIS OF WHICH IS RELEVANT TO IT

For mine water utilization legislation, the foundation is sustainable development. In the 1990s, the idea of sustainable development was formed. In 1987, the then Prime Minister of Norway defined sustainable development, which was then unanimously endorsed at the United Nations. For the theory of sustainable development, it is a new theoretical system, mainly based on the previous development theory, the comprehensive analysis and summary of these theories, and the development mode and thought

advocated, in the new situation, this is bound to be the trend of social development. For sustainable development, it can affect many aspects, such as the social sphere and cultural thinking.

3.1 The Theoretical Foundation of Sustainable Development

Since the birth of the theory of sustainable development, people pay considerable attention to it, in different research fields, and stand in a different perspective of analysis, different scholars on sustainable development of different definitions, the diversified understanding of sustainable development, coupled with the rich content of sustainable development, for the resource legislation, laid a strong theoretical foundation, which in the legislation of renewable resources is fully reflected. From the perspective of natural science, it is considered that sustainable development is a balance, that is, to maintain the balance between resources and resources, from the point of view of social science, for sustainable development, it means to improve people's quality of life under the premise that the ecosystem can be accommodated, in the economist's point of view, is to ensure the quality of resources on the basis of maximizing economic benefits, in the point of view of technical personnel, is to change technology, the use of more effective and cleaner technology, to achieve zero emissions, or to do your best to reduce the consumption of resources. In the view of many governments, sustainable development means meeting the needs of today's people without affecting the development needs of future generations. The definition of sustainable development, such as time and content, is defined in many ways, thus enabling the diversification of sustainable development to be fully reflected. For sustainable development, its connotation to a certain extent shows the pursuit of value, in particular, to promote social development more equitable, which mainly includes two aspects, one is intergenerational equity, the other is intergenerational equity. The implementation of sustainable development means the rational use of resources, and constantly strengthen the resource base, for the economy and ecological environment, the resource base has an important significance and value. From the perspective of resource development, comprehensive utilization of mine water resources, increase the sustainable use of resources, is a strong embodiment of sustainable development theory, in particular, based on intergenerational and intergenerational equity, and constantly improve the utilization rate of resources, make full use of limited resources, for the long-term development of mankind, do a good job of the corresponding protection work. Nowadays, in the process of economic development, the increasing demand for resources, continuous innovation in science and technology, to promote the

full use of resources, and continuous productivity development, these are effective means. The comprehensive utilization of mine water is consistent with sustainable development.

3.2 The Source of Ideas for Sustainable Development.

In the sustainable development, more attention should be paid to economic growth. Under the background of economic growth, people's welfare level can be improved, the national strength can be strengthened, and more wealth can be created for the society, so as to play a positive role. In the process of economic development, we should rely on the progress of science and technology to ensure the quality of economic activities and improve economic efficiency. In order to achieve the purpose of clean production, the economic growth mode used should be scientific and reasonable. In the process of social and economic development, resources and ecological environment are important foundation, and have a great relationship with sustainable development. Comprehensive utilization of mine water resources, in the production process, can greatly reduce the emission of pollutants, has a certain significance for environmental protection, and can save resources for enterprises, reduce costs, and bring more economic benefits for enterprises. From this we can know that in the sustainable development, the mine water legislation is a powerful tool.

4. CONCLUSION

Through the above analysis, we can know that the effective use of mine water resources can reduce the waste of resources, reduce the pressure on the environment and resources, change the economic growth mode, and fully reflect the scientific outlook on development. The diversified understanding of sustainable development, coupled with the rich content of sustainable development, has laid a strong theoretical foundation for the legislation of renewable resources. The comprehensive utilization of mine water resources can greatly reduce the discharge of pollutants, save resources for enterprises and bring more economic benefits.

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Research on The Strategy of Improving the Competence of Young College Teachers in The Intelligent Era

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Abstract: Teachers play an irreplaceable role in China's education system. They are the disseminators of knowledge and the models of students' behavior and habits, which have a great impact on students' learning and life. Every year, colleges and universities will recruit a large number of young teachers, young teachers have become an important part of the teaching staff of colleges and universities, and will become the backbone of efficient education in the future. This paper discusses the strategies to improve the competency of young college teachers in the era of intelligence.

Keywords: Young teachers; Intelligent age; Competency research

1. INTRODUCTION

In recent years, the teaching staff of colleges and universities in China has shown a trend of youth. With the increasing number of young teachers, young teachers have a better understanding of students' personality and life, open and flexible thinking, and have a natural affinity for students. But at the same time, young teachers also have some problems, such as lack of teaching experience and teaching methods, which need to be constantly trained and cultivated. China has entered the era of intelligence. It is of great significance to study the strategies to improve the competency of College Teachers in this era [1, 2].

2. OVERVIEW AND IMPORTANCE OF COMPETENCY RESEARCH

The concept of competency was first put forward in Harvard University, which is a deep-seated personal characteristic that distinguishes the outstanding and adaptable employees from the ordinary employees. Compared with the traditional intelligence test for employees, competency is more closely related to work. The framework of teacher competency mainly includes the ability to master and use professional knowledge, the ability to work together, the ability to plan and manage, the ability to communicate and interact with students, the ability to reflect and summarize. These abilities are embodied in three aspects: planning and preparation, teaching environment monitoring and teaching responsibility. In recent years, the field of education in China has

begun to pay attention to the competency of young teachers, which requires young teachers to have excellent knowledge literacy, teaching ability, scientific research level, good personal characteristics and moral characteristics.

According to the survey, the number of teachers under the age of 30 is about 357500, accounting for 28%, and the number of teachers under 35 is 591300, accounting for 47%. The competency of young college teachers is the key to the reform and development of higher education in China. Young teachers' thoughts and personality are closer to students, have a good affinity for students, and are easier to communicate with students. However, there are still some problems in young teachers, such as lack of teaching experience, lack of classroom control ability and so on. The research on the strategies to improve the competence of young teachers is helpful to improve the teaching quality of young teachers. Now it is the era of intelligence. With the rapid development of information technology, the integration of intelligent information technology and education has become an inevitable trend, which has changed the traditional teaching methods. In the intelligent age, the research on the strategies to improve the competence of high-efficiency young teachers plays an important role in both teachers' personal development and students' learning.

3. ANALYSIS ON THE STRATEGIES TO IMPROVE THE COMPETENCE OF YOUNG COLLEGE TEACHERS IN THE ERA OF INTELLIGENCE

3.1 Improve The Management Training Mechanism

To improve the competency of young teachers in Colleges and universities, we need to change the traditional concept of personnel management, take teachers as the core, build a post model suitable for the development of schools and teachers, improve teachers' post competency awareness from the concept, and let teachers adapt to the role as soon as possible. The training of young teachers should be systematized and visualized, and clear development path and direction should be given. The management training mechanism of young teachers should be divided into three parts, namely, the cultivation of personal quality,

teaching ability and management ability. In this training process, intelligent equipment can be used to assist. Because young teachers have just finished their study career, they often bring the habits of students' times into teaching, which will bring bad influence to students. In the management of young teachers, we should standardize teachers' behavior and dress. Schools can formulate comprehensive prohibitions, such as smoking, swearing, wearing strange things and so on, and establish an intelligent inspection system to record these prohibitions. Teachers are required to watch these prohibitions every day and check whether they have violated them in the teaching process. At the same time, the content advocated by colleges and universities should also be recorded in it, so that young teachers can watch it every day and improve their impression. For the cultivation of teaching ability, schools can input excellent and experienced teachers' teaching courses in intelligent equipment, so that college teachers can take out fixed time to study every day. It is also possible to establish an intelligent feedback system based on the class. The feedback system should include the course content and exercises. Teachers can grade directly through the feedback system. Students can feed back the knowledge points and exercises they don't understand to the teachers at any time through the system. The feedback system can summarize the difficulties encountered by students through the data system. Young teachers can intuitively see the learning situation of each class and reflect on their teaching methods, so as to improve their teaching methods. For the management level of teachers, the school can also integrate the monitoring system in the class into the intelligent equipment. Young teachers can check anytime and anywhere, observe the students' learning characteristics, behavior habits, life hobbies, and flexibly change their own management methods, which can effectively improve the management level of young teachers.

3.2 Constructing The Evaluation Index System Of Teachers' Post Competence

Teaching in Colleges and universities is very important, which is related to the college entrance examination of students. Therefore, it is necessary to strengthen the competency of young teachers, stimulate their working enthusiasm and professional research ability, and construct the evaluation index system of teachers' post competency is a very effective incentive method. The competency evaluation index system should take fairness, justice and openness as the core, improve and promote the post competency of young teachers as the purpose, and effectively help young teachers self-reflection, self-examination and self-criticism. With the development of science and technology, the evaluation index system of teachers'

post competency can include students' evaluation, teachers' self-evaluation, colleagues' evaluation, parents' evaluation and performance evaluation, so as to make the evaluation more comprehensive and scientific. The evaluation of students should include the evaluation of young teachers' management ability, teaching ability and communication ability. Through systematic calculation, teachers' teaching level can be objectively reflected. Performance evaluation can count the results of each month and each semester, and summarize the trend of change, so that young people can have a general grasp of the achievements of their education work at various stages. In the evaluation system, there will be a competitive atmosphere among young teachers. Young teachers will always spur themselves, make continuous progress, improve their competence, and form a benign competitive environment, which not only improves teachers' personal ability, but also helps students' learning. In schools, teachers with excellent competency can also be selected through the evaluation index system of teachers' post competency to join the core teaching team, focus on training, and help schools allocate and combine teachers reasonably.

4. CONCLUSION

The number of young teachers in Colleges and universities in China is increasing year by year, and young teachers have become the backbone of higher education. Competency is an important index reflecting the teaching ability, management ability and personal quality of teachers. It is of great significance to improve the competency of young teachers in Colleges and universities. Schools can combine advanced information technology, build a perfect management and training system for young teachers, and establish a post competency evaluation index system to cultivate young teachers' competency.

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Exploration and Practice of Patent Innovation Education Reform in Higher Vocational Colleges

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Abstract: With the development and progress of society, various industries in China have become mature. In order to promote the rapid development of economy and industry, China began to advocate the direction of innovation-oriented entrepreneurship. In response to the call of national policy, China's higher vocational colleges put forward the strategic plan of innovation and entrepreneurship education reform. On the one hand, it can alleviate the pressure of the employment market, on the other hand, it can also promote the upgrading and optimization of social industrial structure. In order to achieve the goal of innovation and entrepreneurship education reform, higher vocational colleges have proposed patent innovation education reform as a breakthrough. From the perspective of exploration and practice of patent innovation education reform in higher vocational colleges, this paper aims to promote the quality of innovative and entrepreneurial talents training.

Keywords: Higher vocational colleges; Patent innovation education; Exploration and practice

1. INTRODUCTION

Compared with the past, the current social development trend is very different. In the past, the market demand for college students was huge, but due to the gradual saturation of major industries. It is in such a market employment environment that the state and society have put forward a strategic plan for the cultivation of innovative talents. In the process of implementation of this plan, many problems have arisen in higher vocational colleges, such as the construction of talent innovation mode, the construction of innovation and entrepreneurship education curriculum, and the training of teachers of innovation and entrepreneurship education. To achieve the goal of innovation and entrepreneurship education. In the active exploration, higher vocational colleges found that patent Oriented Innovation and entrepreneurship education not only has strong operability, but also can enhance students' exploration autonomy by means of competition activities, which is conducive to the realization of the strategic objectives of innovation and entrepreneurship education [1-4].

2. ANALYSIS ON PATENT INNOVATION OF COLLEGE STUDENTS IN HIGHER VOCATIONAL COLLEGES

ACADEMIC PUBLISHING HOUSE

Before the patent innovation education was put forward, the college students had a vague understanding of the patent innovation education. Adhering to the principles of creativity, practicality and novelty, patent innovation education has been accepted by teachers and students. At the beginning of innovation, college students don't know how to innovate and how to innovate. With the same doubts, teachers and students began to explore the curriculum of patent innovation education. In essence, patent and innovation are interrelated. The purpose of patent oriented innovative education is to make students understand the meaning and essence of innovation education more clearly. In the process of using patent teaching to promote innovative teaching, higher vocational students can obtain patent certificates through association, imagination, design, production, fabrication and publication. This kind of substantial reward can establish students' self-confidence in self-learning and innovation, and also help students form their awareness of patent innovation. At the same time, under the guidance of teachers, higher vocational students can more clearly understand the relationship between patent innovation and social market, and further stimulate students' awareness of innovation and entrepreneurship through the concept of entrepreneurship education and practical teaching.

3. THE CULTIVATION OF PATENT INNOVATION EDUCATION FOR HIGHER VOCATIONAL COLLEGE STUDENTS

3.1 Training Channels Of Patent Innovation Awareness

In order to make students realize the importance of patent innovation awareness, on the one hand, teachers need to explain the meaning of patent innovation, on the other hand, they can organize students to visit and practice. Under the requirements of this educational concept, the cultivation of patent innovation of vocational college students needs to be completed from both theoretical and practical aspects. First of all, teachers need to set up courses related to patent education. In view of the phenomenon that students are in patent cognition, patent application process is vague and they don't know how to protect their own intellectual property rights, teachers must make a strict education plan and bring the basic knowledge of patent into the system of patent innovation education.

Secondly, in order to consolidate the patent knowledge that students have learned in the classroom; teachers need to promote the formation of students' patent innovation consciousness in practice. This requires teachers to carry out the education thought of innovation and entrepreneurship throughout the whole study and life of students. Its specific activities are patent competition, speech, exhibition and other forms, which can not only gradually cultivate students' patent awareness, but also help students to establish goals and Directions [2].

3.2 Innovative Classroom Teaching Mode And Method

In the past, under the influence of traditional teaching ideas, the teaching mode of higher vocational colleges has always adopted the unified teaching mode dominated by teachers. This teaching mode is not conducive to the cultivation of students' innovative consciousness. The construction of innovative classroom is to eliminate the disadvantages of traditional indoctrination teaching mode, and explore the formation of new teaching mode on this basis. The new teaching mode will break the shackles of conventional education, give students more space to imagine and play, and classroom teaching will also be transformed into a teaching mode based on guidance. The purpose is to give full play to students' divergent thinking and cultivate their innovative consciousness [3].

3.3 Construction Of Patent Innovation Quality Education Curriculum

The exploration and construction of patent innovation education system can not follow the old way of traditional teaching mode, it should take students as the main starting point and foothold. In the teaching process, it should not take the score system as the leading factor and affect the growth of students' innovative thinking and ability. In the construction of new curriculum, teachers should play the role of guide and guide students to learn and progress independently. The development and construction of patent education system is to enable higher vocational students to fully understand patent knowledge and carry out patent innovation teaching pertinently. Through the training room, school enterprise cooperation and competition platform provided by various units inside and outside the school, it creates learning opportunities for students, and respects and develops students' patent creation intention [4].

3.3.1 Using Competition To Promote College Students' Innovation

Patent innovation education is a way to carry out knowledge innovation and entrepreneurship education. With the rapid development of society, there is more and more demand for innovative talents. In order to cultivate students into talents expected by the society. Higher vocational colleges often carry out characteristic teaching methods. Patent innovation

teaching can take competition as a stage for students to play. In the process of competition, students not only gain applause and honor, but also understand the significance of innovation and the importance of innovation for their own growth and development. The use of competition can greatly improve college students' innovation consciousness and ability.

4. PROBLEMS AND SUGGESTIONS OF PATENT INNOVATION EDUCATION REFORM OF HIGHER VOCATIONAL COLLEGE STUDENTS

4.1 Lack Of Teachers

At present, the development of patent innovation education in higher vocational colleges is too slow. The main reason is the lack of professional teachers team to support the realization of the goal of patent innovation education. Most of the time, higher vocational colleges ignore the effect of patent innovation education, and do not pay attention to the construction of professional talent team, which makes the project shelved again and again. The solution is to organize teacher training, or recruit a group of professional patent innovation guidance teams, and finally hire professionals to teach on a temporary basis.

4.2 Lack Of Incentive Mechanism

The biggest progress of patent innovation education is that it has a strong incentive. But this kind of incentive is more a kind of motivation of personal spirit. This kind of incentive will not show itself spontaneously, and it needs to appear through a certain carrier. For example, patent competition can improve students' innovation ability and consciousness.

5. CONCLUSION

Generally speaking, innovation and entrepreneurship education needs to be realized in a certain way. Patent innovation education is a new way to achieve it. Higher vocational colleges promote the formation of students' innovative ideas in the form of patent teaching.

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Research on Innovative Application of Vocational Education Based on Blockchain Technology

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Abstract: This paper puts forward the application direction of blockchain technology in vocational education, analyzes that the application of blockchain technology in vocational education is the inevitable requirement from theoretical research to technical application, is the reform and innovation from top-down to people-oriented, is the exploration attempt from generalized vocational education research to specific teaching practice, and designs a block chain technology model applied in vocational education, It is determined to be a hybrid blockchain technology combining alliance chain and private chain.

Keywords: Blockchain; Vocational education; Innovative application

1. INTRODUCTION

The concept of blockchain technology was first proposed in a paper published on the Internet by an author who called himself Satoshi Nakamoto in late 2008< Bitcoin: A Peer-to-Peer Electronic Cash System>. This paper points out that blockchain technology is the basic technology of building bitcoin system. Blockchain records all metadata and encrypted transaction information. Blockchain technology is a new distributed infrastructure and computing paradigm, which is built on the point-to-point network, uses chain data structure to verify and store data, uses distributed node consensus algorithm to generate and update data, uses cryptography to ensure the security of data transmission and access, and uses intelligent contract composed of automatic script code to program and operate data In this paper. The core characteristics of its technology in the application field are decentralization, non-tampering, easy to trace, high trust [1-3]. At present, the global vocational education reform is in the ascendant, new technologies and new ideas emerge in endlessly. The combination of blockchain and vocational education is the necessity of theoretical research and development in the information age, and also the focus of practical exploration in the next stage.

2. THE NECESSITY OF APPLYING BLOCKCHAIN TECHNOLOGY IN VOCATIONAL EDUCATION

2.1 Inevitable Requirements from Theoretical Research To Technical Application

In recent years, the research on the combination of blockchain and vocational education continues to

advance, but the overall research depth and breadth is still insufficient, especially the existing research mainly stays at the theoretical level, and has not put the blockchain technology into the practical application of vocational education. At present, with the continuous expansion of the cross fields of blockchain technology and vocational education, the specific application of blockchain technology in the field of vocational education is bound to appear, and the theoretical research results must be tested through practice.

2.2 Reform And Innovation From Top Down To People Oriented

In view of the escalating revolution in the information industry, the new mode and new pattern of "Internet plus" occupation education are gradually forming, and the occupation education means of information are constantly emerging. At present, the mainstream information systems in vocational colleges are characterized by central system, top-level authority and top-down. In short, all students and learning data are stored in the central database of the system. The release of learning tasks and the evaluation of learning effectiveness are also mastered by the system administrator with top-level authority. Due to the original technical mode, it is easy to lead to utilitarian psychology and distrust of the system record. Through the use of blockchain technology into the process of vocational education management, not only updated a set of application system, but also changed the original top-down evaluation concept. Based on the technical characteristics of blockchain decentralized distributed accounting, unequal trust mechanism and pan participation smart contract, the practical application in the field of vocational education has realized a people-oriented decentralized system by taking each participating student as the node of data collection and storage. In the specific technology application, we should establish the learning data account book, enhance the participation of education subjects, establish a new trust mechanism of anonymous interactive evaluation of students, and promote the innovation and breakthrough of deep concept of vocational education through endogenous incentive.

2.3 Exploration Attempt From Generalized Vocational Education Research To Specific Teaching Practice

At present, the research results basically stay in the

academic concept of broad vocational education field, or mainly theoretical discussion, and have not gone deep into the specific vocational education project and education management practice process. From macro research to micro research, by trying to closely combine the blockchain technology and related software achievements with the whole process of vocational education management, apply and verify the theoretical results of preliminary research in teaching courses, professional construction, element management and other work, and explore the feasible development path of blockchain technology in the field of Vocational education.

3. THE APPLICATION OF BLOCKCHAIN TECHNOLOGY IN VOCATIONAL EDUCATION TEACHING MANAGEMENT

The Ministry of education "education informatization 2.0 action plan" proposed to actively explore the application of blockchain technology, promote vocational education informatization, and build a lifelong education system. According to the degree of decentralization and openness, blockchain can be divided into public chain, private chain and alliance chain. The public chain is completely open, and everyone can access and enter at will, which cannot effectively protect the privacy and security of college students, and is not suitable for vocational education management blockchain. Private chain is only used in a certain organization, which can better protect privacy. However, due to the characteristics of internalization, it is easy to be manipulated and modified. It has poor anti tampering and traceability characteristics, and is not suitable for vocational education management in terms of data security. Alliance chain is a hybrid of public chain and private chain. It takes into account the decentralization of public chain and the efficiency of private chain. It is also regulatory friendly and can only join through authorization. Consensus algorithm is implemented by pre-selected alliance nodes. Other nodes can access the alliance chain, but there is no core accounting function, To a certain extent, it ensures personal privacy, and has the characteristics of tamper proof and traceability.

Vocational education management blockchain nodes mainly include administrative departments of vocational colleges, secondary teaching departments, third-party teaching platform and other alliance nodes with bookkeeping authorization, as well as students who have passed the authorization. Alliance nodes with accounting authorization can put forward evaluation indicators in the blockchain, and form a smart contract after reaching a consensus. The process information of education, training and practice that meet the standards of smart contract will be recorded in the alliance chain. Some alliance nodes (such as the third-party teaching platform) are mobile. When they can't complete the teaching task of vocational education well, their nodes can't continue to stay in the

alliance chain. Combined with the consideration of student privacy security, data tamper prevention, and convenient supervision, the simple alliance chain may not be enough to support the system functions, especially the release of learning tasks, assessment tasks and other functional modules, because of the diversity of learning tasks and assessment tasks, if all of them are included in the smart contract of a node of the alliance chain for bookkeeping and scoring, it will cause more frequent smart contracts New, which leads to the problem that historical data cannot meet the new smart contract, which is very inconvenient to expand. Therefore, the technical model of blockchain applied in vocational education should be determined as a mixture of alliance chain and private chain. The alliance chain includes accounting nodes (administrative departments of vocational colleges, secondary teaching departments, third-party teaching platform) and student nodes. Each accounting node will have its own private chain. Students will join the bookkeeping node when they choose to learn from the accounting node Private chain. In this way, the same student union belongs to one alliance chain and multiple private chains. The advantage of this is that each accounting node can make its own private chain smart contract according to its own characteristics, resources and teaching methods, without affecting the smart contract of the alliance chain, and the alliance chain only restricts the learning type. According to the private contract, each node in the smart chain is synchronized according to the private contract.

4. APPLICATION INNOVATION OF THE COMBINATION OF BLOCKCHAIN TECHNOLOGY AND VOCATIONAL EDUCATION

The hybrid blockchain technology combining alliance chain and private chain, referred to as "hybrid chain", aims at the characteristics of vocational education management, such as the large number of accounting nodes, the difficulty in reaching consensus on smart contracts, and the high requirements for data encryption and privacy protection, and based on the practical application scenarios, the Vocational Education Management Alliance chain system is designed with the following features Next innovation.

4.1 Distributed Light Data Storage Mode

Data storage form is the core key of blockchain technology. The data stored in traditional central database is stored in each user's information equipment through distributed ledger technology, so as to achieve the function effect of decentralization, non tampering and easy traceability. After the distributed storage of data, the original centralized data storage structure is simplified, the data storage space is reduced, and the technical goal of light and efficient is achieved.

4.2 Multi Role Hybrid Chain Implementation Model

In the practice of vocational education management, the original data structure is the organization and

management of the administrative departments of Vocational Colleges - the operation and implementation of secondary departments - individual students, three-level tree structure, top-down and layer by layer management. In addition, it is easier to combine the block chain and the third-party teaching system based on the block chain technology to realize the combination of the two-level structure of the college and the Department of education Flexible and more efficient to achieve the goal of vocational education.

4.3 Objective Training Record Module

Occupation colleges and universities, administrative departments, two levels of teaching and learning, third party teaching platform and other accounting nodes can release learning tasks and examination tasks, and simultaneous interpreting all the nodes according to different nodes' Publishing conditions, and all nodes can witness if necessary. The training results are objective and fair, and there will be no top authority tampering with it, so that students can consciously complete each training course.

4.4 Subjective Growth Effect Evaluation Module

To a certain extent, the effectiveness evaluation of vocational education comes from the evaluation of students' classmates and teachers' performance in their study, work and life. In the past centralized system, the formation of evaluation mechanism is relatively cumbersome, and the superior authorities have the possibility to query and observe the operation of lower level authority, which leads to the subjective evaluation often unable to be objective and fair. The application of blockchain technology can quickly form

an evaluation mechanism for specific individuals, events and behaviors, and the evaluation is anonymous operation to guarantee the authority, which not only ensures that the evaluators are relevant authority personnel, but also ensures that it is impossible to know exactly what kind of evaluation a certain evaluator has made.

5. CONCLUSION

To sum up, blockchain technology, as a representative technology of a new round of information technology innovation, objectively meets the actual needs of vocational education reform. Through the application of blockchain technology, it is the only way for the common development of blockchain and vocational education to solve the current contradictions and problems existing in various subjects of vocational education, form a blockchain application mechanism that meets the requirements of vocational education development, and explore the hybrid blockchain technology combining alliance chain and private chain.

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Management of Stadiums Under the Normalization of Epidemic Situation

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Abstract: Based on the analysis of the impact of the epidemic on the operation of stadiums and stadiums, this paper finds that the epidemic situation brings opportunities for the overall upgrading and optimization of the sports industry. This paper focuses on how to carry out operation and management activities of stadiums and gymnasiums under the normalization of epidemic situation, including nine contents, including overall planning, intelligent operation, venue facilities, passenger flow control and guidance service. On the basis of ensuring the basic safety, it aims to provide conditions for the masses to participate in sports.

Keywords: Epidemic; Stadium; Management; Intelligence.

1. INTRODUCTION

Stadiums and stadiums provide places for people to exercise, training and competition places for sports events, which is also an important embodiment of local social and economic development. Under the normalization of the epidemic situation, in order to ensure the safety of the masses, the stadiums and stadiums cannot be opened normally. It is necessary to do a good job of disinfection and cleaning, and divide the activity area and time [1, 2]. Limited by objective conditions, the management of stadiums and stadiums should be built on the network system platform to ensure the timeliness of information announcement.

2. THE INFLUENCE OF EPIDEMIC SITUATION ON THE MANAGEMENT OF STADIUMS AND STADIUMS

The outbreak of novel coronavirus pneumonia has made the whole society economy stagnate and has a great impact on the operation of the sports industry. In order to avoid a wider range of infection, sports activities cannot be carried out normally, but in fact, it also provides new development opportunities. The appearance of the new crown enhances people's attention to physical fitness and sports industry from the level of people's consciousness. On the whole, the epidemic situation promotes the individual sports to form a stronger fitness needs, at the same time, it helps to promote the optimization and adjustment of sports industry facilities and products. In addition, strengthen the comprehensive combination of online and offline sports activities, make full use of modern information technology, and promote the comprehensive development. The sports venues are an indispensable

part of the sports industry, so we should improve the level of public services.

The operation and management of stadiums and stadiums mainly focus on the service performance of venues, including venue equipment services, passenger flow control, health management, sports behavior guidance, cultural services and other services. All kinds of stadiums and gymnasiums should play an important role in the construction of all kinds of stadiums in an orderly and orderly way. Developing Internet plus mode, integrating modern information technology with national fitness, laying stress on reasonable combination of online and offline, ensuring the efficiency of sports venues, and fully exploring various resources, so as to form new industrial form, operation mode and management technology, and build diversified sports services and products. Therefore, to promote the new industrial pattern, ensure the normal development of sports industry, and promote the management behavior to a new height.

3. OPERATION AND MANAGEMENT OF STADIUMS AND GYMNASIUMS UNDER THE SITUATION OF NORMALIZATION OF EPIDEMIC SITUATION

3.1 Overall Operation Idea

For the managers of stadiums and stadiums, they usually ignore two aspects of resources: users and data. In terms of data, managers should consider how to grasp the actual operation status of stadiums and stadiums with the help of various data, and how to analyze the normative degree of regulatory work. At present, the information level of stadiums and stadiums is low, and some stadiums still use the traditional paper mode for management, which makes the material storage mode present the characteristics of fragmentation. However, this mode has been unable to adapt to the information needs under the situation of epidemic normalization. Therefore, operators should build an intelligent management and control platform, form an integrated operation of network on-site service and sports operation, project training, product retail and other aspects, and establish smart sports venues. Through the realization of internal information, improve the degree of standardization of business management. At the same time, it is equipped with intelligent hardware facilities to ensure the service effect of venues, control the input of human resources, and form a more intuitive operation chart to provide reference data for operators to make decisions

and improve the flexibility of business direction. The outbreak of the epidemic has brought opportunities for the sports industry to realize digitization and intelligence. We should reasonably use modern Internet, cloud computing, data analysis and other technologies to realize situational awareness and sports digitization, so as to supplement the sports industry and realize the effective combination of online and offline.

3.2 Drive Smart Operations

The long-term development of the sports industry shows the shortage of supply. China's stadiums of all kinds of resources input and the income obtained is a big difference, the existing stadiums are basically in a state of no profit, and in the management, period usually will not consider the "depreciation" problem. Smart operating models can also be defined as ecological operations. Treat stadiums as a complete ecosystem that transforms stadiums from a single operation into an industry complex, working with other industries to increase the probability of profitability. In addition, on the basis of no property rights, there is always a certain distance between commercialization, at present, the vast majority of domestic stadiums cannot be called "smart stadiums", if you want to reach the degree of wisdom, should adjust its management mechanism. To carry out the "Internet plus" operating model, the physical stadiums and information networks to integrate to make up for the lack of stadium supply defects. At the same time, strengthen the information ization and digitization of all kinds of resources in order to improve the efficiency of the use of resources and promote the all-round development of the sports industry.

On the one hand, the information ization of the stadium. With the help of digital management system, the media combination playback mode, timely push of sports related information. It is important to ensure the diversity of information presentation methods, rational use of video, audio, images, animation and other ways to provide the audience with more complete sports information, to improve the visual experience. On the other hand, the stadium is intelligent. With the help of the query guidance system, the content is published in the hall with introductory content, and the corresponding navigation service is provided in the public space and special space of the museum, and the public service level of the stadium is strengthened. 5G communication technology is the technical cornerstone of smart stadiums. First, with 5G technology, we can provide a clearer visual experience, second, provide intelligent services for the event, apply more advanced equipment and equipment to form multi-functional operational services, and finally, improve security and post-stage work to implement the overall comprehensive, maintain the overall operational management results.

3.3 Event Venue Facilities Services

The basic function of the stadium is to rely on the stadium itself, to provide the necessary equipment and environmental conditions for the masses to exercise, to ensure the quality of service management for opening up to the outside world, and to measure the public welfare and operation of the stadium. To this end, the construction of campus sports stadiums and social sports equipment service network integration, the formation of multi-level service effect. Specifically, it is necessary to build a "Internet plus" management service platform based on the stadium itself +” to achieve comprehensive supervision and management and bring the distance between the stadium users and the stadium closer. Operators need to appropriately increase the stadium sports hardware equipment input, in order to provide the masses with a more convenient sports environment, to achieve a "self-service" ” service “ model, in order to control the waiting time of the masses. At the same time, it also helps to reduce the workload of field staff, improve the quality and efficiency of management, in order to optimize the sports experience of the masses, build a new intelligent stadium. In addition, with the help of the network platform, collect relevant information and data on sports stadiums and sports facilities, and upload to the corresponding servers, to achieve resource integration, centralized management, thereby ensuring the utilization of various types of equipment resources, improve the flexibility of operations and overall level.

3.4 Venue Passenger Flow Control Services

Under the normalization of the epidemic, it is necessary to avoid the situation of large numbers of people gathering, for which the flow should be limited to ensure basic safety. Specific use of the existing social platform, to carry out reservation services, such as telephone, SMS, WeChat, small programs, etc., in order to strengthen personnel management, to achieve time-sharing, sub-regional exercise, strictly control the venue passenger flow. At the same time in the stadium to carry out a comprehensive disinfection, disinfection operations should be controlled at about three hours once the frequency. In addition, managers need to make full use of a variety of channels to convey information to the masses, to ensure that the people who come to the stadium sports are aware of the venue's opening hours, areas, activities, appointments and other during the outbreak of protective measures, timely inform the public to obtain their understanding. Under the normalization of the epidemic, the opening hours of the stadiums should be adjusted according to the local outbreak of the stadiums to ensure the comprehensive nature of disinfection and cleaning operations. In addition, the network channel to book venue sports, the field venue write-off opening. Control the number of people in each activity space, once the number of people in a certain period of time to reach the upper limit, the need to immediately close the reservation channel, and timely communication

with the masses to obtain their understanding, thereby ensuring that the data on the line and offline consistent. The bills obtained by the masses through the online platform can be directly in the field venues after the write-off can enter, and in the front desk to exchange the corresponding hand, so as to avoid the queue and other space of excessive traffic problems. In addition, the number of live people and other necessary information is scrolled on the LED display in the stadium.

3.5 Ensure The Health Of The Visitors

Affected by the epidemic, prompting the public to pay attention to the health and safety of the public environment, in the operation of sports stadiums, to ensure the health of the participants is necessary. Admissions are required to fill in the required information on a dedicated platform and review the health code as one of the necessary admission documents. In addition, all entrances and exits of sports venues need to set up warning signs, and publish the local control center contact information and address. At the same time, the need to strengthen the management of access, on-site temperature measurement, scanning health code and so on. In addition, with the help of the temperature detection system to ensure the safety of stadiums, once the abnormal situation is found, immediately isolated and a comprehensive inspection. With the assistance of the working procedure of the temperature measurement system and other equipment, it can be realized without increasing the input and workload of the workers, the system can be monitored to ensure the efficiency of the entrance and exit, so as to ensure the safety of the operation and management of the stadium. In addition, accurate and truthful registration of the health status of the participants, such as temperature, temperature measurement time, health conditions, contact methods and other information. With the help of intelligent temperature measurement system, basic data collection and integration can be completed to provide reliable data information for later data analysis.

3.6 Sports Activity Guidance Services

Most sports activities are guided by professionals, and the current domestic sports stadium sports guidance service is the responsibility of specific instructors. The role of the guiding work and the stadium equipment has a certain relationship, reasonable and stable sports equipment, not only to ensure the demonstration effect of guiding sports, but also conducive to deepening the public's awareness of sports knowledge. In this regard, the stadium operators can set up instructor functions on specific online platforms, in order to legally provide the masses with part of the information of social instructors, so that they can accept professional sports guidance. In the dedicated network service platform, to open praise, comments and other functions, in order to close the distance between instructors and the masses, to stimulate the enthusiasm

of the instructors. In addition, with the instructor's own consent, through the mobile device to locate the route of their activities, record the number of exercise stakes conducted by the instructor, based on this, the number of people to carry out fitness guidance and the effectiveness of the analysis and evaluation.

3.7 Conduct Physical Monitoring And Management

The implementation of physical monitoring to grasp the current physical condition of the masses, for this, can be taken sampling survey mode, compared with the established physical fitness indicators, regular physical monitoring of a specific group. Sports stadiums in the normal outbreak, according to the actual functions of the internal space, arrange the corresponding products and services, to ensure the use of facilities at the same time, to meet the actual needs of the masses. Specifically, with the help of the corresponding physical monitoring system of the online platform, the way of physical testing should be adjusted rationally, and the masses can fully combine the personal time planning, complete online appointments, results query, etc., in order to establish personal data files. After the comparative analysis of the data, the masses can visually see their own changes before and after the movement, thus stimulating the enthusiasm of the masses. In addition, we should improve the innovation and flexibility of service model, to facilitate the monitoring channels for the masses, at the same time, can use the system platform to obtain health information directly, and on this basis to build a special database, so as to provide the masses with appropriate sports advice in a timely manner, to ensure the scientific nature of mass sports.

3.8 Ensure The Quality Of Information Services

At present, the overall situation of sports venues is in short supply, which is difficult to meet the needs of people's various sports services. Therefore, qualified stadiums and stadiums should establish information service platform to ensure that sports participants can obtain the required information in time. The information service of stadiums and stadiums includes open items, time, etc. through network booking, it can provide suitable sports for people of all ages, sports demands and consumption levels, and reasonably arrange the sports time, so as to improve the resource utilization efficiency of special time, so as to avoid the problems of too many people in some space and less people in some areas. Through the online service platform, stadium operators can control all kinds of resources, such as internal space and sports events, and improve the management effect of stadiums and stadiums, so as to meet the actual needs of the masses and participants in sports events, and ensure the comprehensiveness, convenience and efficiency of services. At the same time, the correlation analysis of the collected data is carried out to ensure the maximum benefit of the personnel participating in sports activities and improve the use efficiency of sports

venues.

3.9 Sports Culture Management Services

The construction of stadiums and stadiums is usually to hold large-scale sports events, which can be defined as the landmark of the city, highlighting the sports spirit and carrying out sports activities containing sports culture, so as to mobilize the enthusiasm of the masses and realize the comprehensive promotion of sports culture. Sports competitions and performances are a part of the main income sources of stadium management. Under the normalization of epidemic situation, online sports platform should be used to carry out live broadcast, broadcast and performance query of sports events. At the same time, with the use of modern advanced technology, such as 5g communication, UAV, etc., the masses can watch the event from multiple angles, and the online audience can wear VR glasses or use high-definition equipment to watch the event, so as to improve the sensory experience of the audience. In addition, it is necessary to ensure smooth communication during sports activities, carry out online interaction, and ensure the quality of management.

4. CONCLUSION

Under the social environment of nationwide fitness, the Internet plus sports mode can effectively integrate and share resources. It is believed that through the joint efforts of all sectors, the haze will eventually break down and usher in the sunshine. We can really take off the mask and rush to the unfinished agreement with spring.

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Research Progress in The Bioactivity of Procyanidins

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Abstract: Procyanidins are a class of flavonoid compounds, which have a wide range of applications and low toxicity. They are widely used in food, medicine, health care products and other fields, with a variety of biological activities. In this paper, the biological activities of proanthocyanins were systematically introduced, and some references were provided for further study.

Keywords: Procyanidins; Flavonoids; Biological activity

1. INTRODUCTION

Procyanidins (PC) are a class of flavonoid compounds synthesized by the polymerization of flavan-3-ol monomers which are widely distributed in nature. They are widely found in fruits, Cereals, beans, nuts and spices, PC has food source, low toxicity and strong biological activity. It has a variety of effects on human health and disease prevention and treatment, such as anti-oxidation, anti-inflammatory, anti-allergy, prevention and treatment of cardiovascular disease, anti-cancer, anti-tumor, blood lipid, blood glucose, blood pressure and so on.

2. ANTIOXIDANT ACTIVITY

PC is one of the most effective free radical scavengers discovered so far, because of its strong antioxidant activity, its oxygen free radical scavenging ability is dozens of times stronger than vitamin C and vitamin E. PC contains multiple phenolic hydroxyl groups, which can be oxidized and release H⁺, which can combine with the reactive oxygen radicals produced by human body, and block the peroxidation damage of cell membrane lipid by scavenging reactive oxygen species. Among them, proanthocyanins from lotus seed shell have strong ability to scavenge DPPH and ABTS free radicals, which is a natural antioxidant with great development potential [1,2].

3. ANTI INFLAMMATORY

PC is a family of plant metabolites, which is believed to reduce the pathogenesis of osteoarthritis in mice. Polymerase chain reaction showed that PC treatment reduced the expression of VEGF and effector factors in the pathogenesis of OA regulated by VEGF [3]. GSP can reduce the production of some inflammatory mediators, inhibit the infiltration of inflammatory cells, and increase the production of anti-inflammatory cytokines, so as to carry out anti-inflammatory effect on acute colitis [4].

4. PREVENTION AND TREATMENT OF

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CARDIOVASCULAR DISEASES

PC has the functions of anti-oxidation, anti-inflammatory, prevention of thrombosis, prevention of atherosclerosis, and lowering cholesterol. It can reduce the incidence rate of cardiovascular diseases through various mechanisms. PC can not only reduce serum cholesterol level, inhibit LDL oxidation, activate endothelial nitric oxide synthase to avoid thrombosis caused by platelet aggregation, but also change oxidative stress state by regulating enzyme activity and cell signal pathway, thus preventing cardiovascular disease [5].

5. ANTI CANCER

PC can inhibit the growth of lung cancer cells and promote their apoptosis by inhibiting the over expression of cyclooxygenase-2 and prostaglandin, thus inhibiting the inflammatory reaction and preventing the occurrence of skin cancer induced by ultraviolet rays. It can also inhibit the proliferation of colon cancer cells by activating apoptotic protease-3. In addition, GSP can inhibit the growth and migration of pancreatic cancer cells and promote the apoptosis of pancreatic cancer cells by up regulating the expression of let-7a in AsPC-1 cells.

6. ANTI TUMOR

PC plays a significant role in the prevention and treatment of cancer, and its molecular mechanisms include nuclear factor pathway, mitogen activated protein (MAPK) pathway, apoptosis, phosphatidylinositol 3 kinase / protein kinase B (PI3K / Akt) pathway, regulation of matrix metalloproteinases, and regulation of cell cycle [6].

7. REDUCE BLOOD FAT

High levels of TC, TG and other lipids in the blood will be oxidized to form peroxides, which will accumulate and adhere to the inner side of the vessel wall and hinder blood flow. In the long run, atherosclerosis will lead to atherosclerosis, and atherosclerosis will lead to more serious cardiovascular diseases, such as coronary heart disease (CHD). Studies have found that blueberry supplements (including anthocyanins and procyanidins) for 10 weeks can reduce blood pressure and improve vascular endothelial function when animals are fed a high-fat and high cholesterol diet [7,8]. PC can reduce oxidative stress, lipid peroxidation and free radical production, oxidize low density lipoprotein cholesterol, and inhibit the expression of genes related to new adipogenesis.

8. LOWERING BLOOD SUGAR

GSP can significantly reduce blood glucose and improve blood lipid in patients with type 2 diabetes mellitus, which is conducive to improve the symptoms of diabetes. The mechanism of GSP may be related to its ability to resist oxidative stress, repair damaged β cells, regulate the proliferation and apoptosis of β cells, inhibit the oxidative modification of LDL-C, alleviate the level of serum insulin resistance, and regulate glucose and lipid Metabolism is related [9].

9. LOWERING BLOOD PRESSURE

Studies have shown that vascular remodeling is closely related to target organ damage caused by hypertension, so it is very important to protect the structure and function of target organ in patients with hypertension. GSP can significantly reduce systolic blood pressure in RH rats, and its mechanism is related to the enhancement of antioxidant capacity, the increase of eNOS protein expression and no production and release, inhibition of TNF- α and ET-1 protein expression in vascular tissue, and promotion of anti-inflammatory mediator IL-10.

10. CONCLUSION

At present, oligomeric procyanidins are the main research objects of PC bioactivity. The biological activity of high polymer procyanidins with polymerization degree greater than 4 is not clear because they cannot pass through the biofilm and be absorbed by human body. The application of Procyanidins in China is still very few, so PC has high research potential and value.

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Innovation and Development of Clothing Brands in The Era of Big Data

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Abstract: With the rapid development of economy, China's clothing brands need to transform in the era of big data, mainly because big data can better help clothing enterprises to continue to move forward, and big data is also the trend of the times. This paper mainly starts from the business model of a certain clothing brand, analyzes the current situation of other brands in China with the help of this brand, and discusses the problems existing in the development of a certain clothing brand in the digital era, so as to refine the innovation strategy and provide some constructive suggestions for it.

Keywords: Big data era; Clothing; Brand innovation; Product type specialty

1. INTRODUCTION

Since the 1990s, clothing sales began to be influenced by young people. From simple clothing sales to brand clothing sales, it also represents that "brand" is the key to clothing sales. Therefore, how to launch this strategy in the new era depends on the help of big data. Moreover, China's industry is also changing from "quantitative change" to "quality". We can see that we are trying to find a breakthrough point. Moreover, a certain clothing brand discussed in this paper has many brands, such as Jinyuan, binyinu and Dipai. In the era of big data, it is urgent to transform and explore new sales mode to bring profits to enterprises [1, 2].

2. THE STATUS QUO OF DIGITAL APPLICATION OF A CLOTHING BRAND

Through on-the-spot observation, the clothing brands explored in this paper also include Jinyuan, binyinu, Dipai and other brands, so they need to adapt to the changes in the market. In recent years, in order to be closer to the requirements and quality of modern people, the brand has carried out a comprehensive market survey. For example, in terms of clothing design style, it needs to combine with the draft of design department and R & D department, and there are also groups In addition, the production plan and marketing channel have been investigated in a few years. At the same time, the clothing of these brands has also occupied a place in the market with its own unique and diversified styles. At the same time, with the rise of the domestic clothing industry, the disadvantages are gradually exposed in the fierce competition End.

Among them, now is the era of the Internet, the development of big data is also dependent on the

development of the Internet. One of the most distinctive brands of a certain brand of clothing is "edenberg". It is also the first enterprise to use big data. Firstly, it is based on the "gentlemanly style". Secondly, it is in the name of quality. Thirdly, it adheres to the noble, elegant and comfortable British style and the style of British family life as the theme. Many men begin to pursue this kind of delicacy and elegance Life attitude and model. With the gradual deepening of big data, adenburg brand began to use big data to collect and investigate the market's recognition of the brand as well as the improvement opinions, so as to revise and position some dissatisfied places of the public, so as to deepen the characteristics of the brand. Moreover, the British style of the brand is divided into leisure style, elegant style, personality style and high-end style, so as to provide convenience for consumers and create personalized service; on the other hand, it uses big data to extend the industrial chain, create online and offline mode, and further improve the brand system. Moreover, "edenberg" has been awarded the title of "top ten men's wear" number.

3. PROBLEMS IN THE DEVELOPMENT OF A CLOTHING BRAND IN THE ERA OF DATA

3.1 The Value Of Clothing Brand Is Declining And The Core Competitiveness Is Lacking

Although the major clothing brands in a certain brand city in our country have gained a place in the competition, and have been given a lot of preferential treatment in the national policies. In the continuous reform and upgrading, economic benefits have been achieved, but with the development of information technology, some problems have also been exposed, such as the value of the brand has been declining, although it has made up for the effect to a certain extent Still unsatisfactory. In addition, it is also the era of e-commerce. Some emerging e-commerce clothing is popular among young people. According to the survey, some newly opened e-commerce clothing are more popular than classic brands. As for "adenburg", although it has a long history, it is not sought after by young people, mainly because the indicators of brand loyalty, brand awareness and brand awareness are all below The overall performance of the staff who have collected 20-40 years old is that they have a low awareness of the brand, and the loyalty of some old customers is also declining, indicating that the clothing has not changed with the development of the times, and is relatively backward in concept and too old in

style. From the above results, it can be concluded that the brand image needs to be upgraded to meet the needs of consumers Demand.

3.2 The Operation Mode Of Clothing Enterprises Is Single And The Phenomenon Of Product Homogeneity Is Serious

So far, the clothing enterprises discussed in this paper are mainly small and medium-sized, and the management mode is too old. Obviously, the family system has not adapted to the needs of the development of the times. In the operation mode, it adopts the OEM mode, and has not formed its own marketing system. In this way, we can find that it has seriously restricted its own development, and it is difficult to be bigger and stronger under the operation mode of others, so we have lost the opportunity of development in the era of big data. In addition, although a clothing enterprise has many brands, the brand positioning is not obvious, and the homogenization phenomenon is serious, and will imitate some popular factors to make the new season, especially with obvious short-term benefit style. Therefore, it also leads to the aesthetic fatigue of consumers. In the face of the market, the clothing styles are similar and not worth buying [1].

4. INNOVATION STRATEGY OF A CLOTHING BRAND IN THE ERA OF BIG DATA

4.1 With The Help Of Big Data, Carry Out Various Operation Modes To Support Brand r & d And Production

At present, the public's purchasing power is improved and their understanding of fashion is more thorough, especially the taste pursuit of young people is individualized. Therefore, in the innovation strategy, we should use the advantage of big data to collect the trend of consumers in the market, and change the OEM mode into c2m mode in the application mode, so that the producers and consumers can "talk" directly and reduce it through scientific methods Cost, so as to improve economic benefits for enterprises. In addition, there is the problem of inventory. In order to solve the problem of inventory surplus, F2C mode can be used to combine traditional path with modern path, so as to improve customer satisfaction.

4.2 Establish Brand Terminal Clothing System And Improve Mobile Marketing Enterprise Management
Now the State advocates the "Internet plus" mode. The enterprises mentioned in this article can also use this

mode to open two kinds of online and offline businesses, and at the same time, communicate with each other to reduce the trouble caused by shortages. In addition, it is also necessary to build a corresponding platform or enterprise wechat, so that internal staff can communicate in time.

4.3 Strengthen The Construction Of Clothing Enterprise Culture And Enrich The Connotation Of Brand Culture

Corporate culture is a means to enhance the competitiveness of enterprises, so we should inject culture into enterprises, and at the same time, we should also implant the popular elements into them to create a high-quality team. As the cultural value of an enterprise is too low, it is necessary to create a cultural atmosphere as soon as possible, so as to enhance the connotation of the brand [2].

4.3 Adhere To The Thinking Of Keeping Pace With The Times And Seek Multi-Party Cooperation

At this stage, the development of science and technology is changing with each passing day, so the enterprise should also adhere to the thinking of keeping pace with the times and seek multi-party cooperation. For example, 3D and AR can be used to let consumers feel the high-end mode. In addition, we should also seek multi-party cooperation, such as enterprise bidding, bank loans, enterprise merger, enterprise cooperation and so on.

5. CONCLUSION

To sum up, it is a brief analysis of the innovation and development of clothing brands in the era of big data. Taking the mode of an enterprise as an example, it is also the specific operation mode in China now. Therefore, in the era of big data, we should mainly use new technology to make up for the shortcomings of the traditional mode, and use the advantages of big data to collect relevant information to provide guarantee for the enterprise's hard work.

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The Construction of Computer Professional Training Mode in Undergraduate Vocational Education: Market Demand Oriented

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Abstract: The talent training mode of undergraduate vocational education has experienced a long time of development, and has formed the training mode of combination of production, teaching and research, and is gradually optimizing the talent training mode oriented by market demand. Starting from the current situation of undergraduate computer professional training, this paper analyzes the construction of market-oriented talent training mode in order to promote the overall development of students and promote the reform process of education system.

Keywords: Undergraduate; Vocational education; Computer science; Market demand.

1. INTRODUCTION

Vocational education is a long-term systematic project. Educators should take a long-term view to solve various problems existing at this stage. We should take the market demand as the guidance, put the training goal of application-oriented, innovative and all-round talents into the school's specialty setting, curriculum setting and teaching mode, connect the training with the market, and constantly improve the core competitiveness of undergraduate colleges and universities.

2. THE CURRENT SITUATION OF TRAINING UNDERGRADUATE COMPUTER PROFESSIONALS

China has entered a new stage of the development of socialism with Chinese characteristics. The development of the new era puts forward higher requirements for the vocational education of computer major in undergraduate colleges. In the face of the new situation, it is necessary to find a good starting point to better integrate vocational education into the teaching scheme, so as to provide new ideas for solving the problem of talent cultivation. The specific problems can be summarized as follows: first, the concept of vocational education needs to be updated. In order to meet the needs of the development of the times, many universities have added computer major. From a certain point of view, the employment pressure will increase with the number of computer graduates, but from the actual situation, the market demand for computer professionals is increasing, which reflects that contemporary students are too utilitarian and have no clear understanding of job selection and

employment, leading to their passive employment status. 2\ The talent training mode needs to be improved. In recent years, the state attaches great importance to the development of computer industry, and has promulgated a number of policies to provide greater space for the development of computer industry. However, most colleges and universities still use the traditional teaching mode and textbooks, and students are still in a passive position to accept knowledge. This kind of fixed teaching mode has been unable to adapt to the development of modern teaching, and students also lack strong post adaptability and practical ability. Therefore, it promotes the reform of teaching and learning mode. 3\ The level of professional knowledge needs to be expanded. On the one hand, the backward teaching staff cannot meet the requirements of modern personnel training, and cannot transmit advanced theoretical knowledge and professional skills to students, which affects the overall development of students. On the other hand, the school provides less practical positions for students, and the vocational education curriculum is not in place, so that students do not form a correct view of career selection and employment [1,2].

3. BUILD A MARKET-ORIENTED TALENT DEVELOPMENT MODEL

3.1 Talent Development Objectives Are Closely Integrated With Market Demand

Economic environment, organizational structure is increasingly complex, the status and role of computer talents in society is also gradually improving, the traditional computer talent is mainly the use of computers for related business, to serve management. Therefore, in the complex market environment, give full play to the advantages of computer talents, it is necessary to carry out life-long ability training from the school stage, market demand-oriented, and constantly promote the improvement of students' ability. On the one hand, the vocational education of computer science should be combined with ideological and political education to improve students' own ideological awareness and participate in daily learning life with a more active attitude. Use ideological and political education to strengthen students' understanding of patriotism and enhance their national pride. For example, in introducing the history of computer development, teachers can

introduce students to China's outstanding computer research personnel, introduce the progress of China's development of supercomputers, so that students fully realize the level and status of China's computers in the world, so that students feel the country's rising scientific and technological strength, so as to enhance students' recognition of computer science, stimulate students' interest in scientific research practice, but also to guide students to establish correct values and employment concepts, We are constantly working hard to realize the Chinese dream of the great rejuvenation of the Chinese nation. On the other hand, in daily teaching, we should emphasize the cultivation of students' professional ethics, and warn students about the cases of illegal activities by using computers in reality, so as to cultivate talents of thought, morality and behavior for the market and improve students' ability to make infinite contributions to the country and society.

3.2 In Combination With The Practice Of Job Optimization Curriculum System

On the one hand, schools and enterprises should continue to strengthen cooperation to provide students with more practical positions. Computer as a practical, targeted, professional curriculum, its curriculum and practical posts should always be in line with market demand, first, pay attention to the "double division" teacher training. After docking with enterprises, on the basis of the original training teachers, improve the management system of teachers, and actively introduce computer industry technical experts and enterprise technicians as part-time teachers of the school, so that students in the classroom can understand the enterprise's skills and management model, while promoting the full-time teachers "double division" ability to improve. Second, strengthen the input of hardware facilities. The training base in the school is the key place to train the students' practical skill level, through the introduction of hardware facilities, can simulate the actual production and operation scenario of the enterprise, let the students feel the environment of future work from the practical training, production, training and so on, have a advance understanding of employment, so as to effectively promote the construction of the professional talent training model of undergraduate colleges and universities. Third, the Government should strongly support cooperation between enterprises and schools. In view of the actual needs of the market, through a series of documents on vocational education to emphasize the importance of the combination of schools and enterprises, so as to continuously optimize the allocation of resources of all parties, and constantly improve the conditions for running schools, accelerate the transformation and upgrading of enterprises. On the other hand, optimize the quality assessment of vocational education in schools, so as to provide a strong basis for the

continuous improvement of talent training model. Within the school, the education department organized by the leadership of the lecture, computer teaching activities for regular supervision and control management, for the teaching quality of teachers to continue to follow up. In addition, the Education Department should follow up with graduates on an ongoing basis to fully grasp the employment situation of students. For students who have not graduated, we should standardize their learning behavior in the training base, promote the students' comprehensive grasp of theoretical and practical knowledge, so that the comprehensive business ability can meet the market demand.

3.3 Reform The Teaching Mode And Content

First of all, as far as the current vocational education of computer majors in undergraduate colleges and universities is, teachers should update their professional knowledge in a timely manner, integrate relevant teaching materials, and constantly improve the teaching content. The teaching system is generally divided into basic teaching system, professional curriculum education system and social practice teaching system, and teachers can carry out modular teaching to students according to the characteristics of different teaching systems, so as to improve students' personal ability in a targeted way; The teaching goal of vocational education is education for employment, therefore, computer teaching must establish a professional-oriented teaching model, and constantly introduce advanced information technology, starting from the market demand of computer industry, adhere to the principle of people-oriented, accurately locate the goal of personnel training, give full play to the role of network teaching resources in computer teaching. For example, by combining the class with the flip classroom to achieve the full integration of "learning" and "teaching", students can use the teaching videos and learning materials uploaded by teachers anytime, anywhere, IT and constantly consolidate their professional knowledge, and constantly improve their creative ability, practical ability, exploration ability, enhance core competitiveness, better respond to market requirements; For example, VR technology is a high-tech in the computer industry at this stage, and after the handover with the big data platform, it can bring a lot of exploration material and practice platform for students. Teachers can provide students with access to information on the latest developments in VR technology, encourage students to complete relevant technology projects independently through platforms in various VR virtual reality technologies, and find the operating procedures they want in the VR Technology Library to save time and cost, and to clarify their own direction in the computer industry in practice.

4.CONCLUSION

To sum up, undergraduate colleges and universities

should always focus on market demand, adhere to the principle of people-oriented, and cultivate students' post ability. According to the current development trend of computer technology, we should constantly update the content of vocational education, improve the talent training mode, and improve the professional teaching system, so as to highlight the characteristics of computer major in undergraduate colleges and universities, and cultivate more excellent computer talents for the country.

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How to Do Well the Construction Project Management of Oilfield Surface Construction Engineering

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Abstract: With the gradual improvement of oilfield production efficiency, it has played a great role in promoting the development of China's oil industry. The construction of surface construction engineering, as the premise of oilfield production, plays an important role in the process of oil resources exploitation. Strengthening the construction management of oilfield surface construction engineering can not only improve the overall quality of the project, but also extend the service life of the project. It can also play a good foundation for oilfield production and promote the steady growth of China's economy. Based on the construction characteristics of Oilfield Surface Construction Engineering, the author discusses the measures and Countermeasures to improve the construction management in each stage of construction engineering.

Keywords: Oilfield; Construction engineering; Construction project management

1. INTRODUCTION

In the construction of Oilfield Surface Construction Engineering, due to the influence of construction technology, weather and climate, geological changes and other factors, the site construction of staff is facing great challenges, and the workload of project management personnel is also greatly increased. To do well in the construction project management of Oilfield Surface Construction Engineering, we should not only focus on the construction of the project site, but also strictly control the preparation stage and completion acceptance. Only through the scientific and standardized control and management of each work link of oilfield surface construction engineering can the overall quality of construction engineering be significantly improved.

2. CONSTRUCTION CHARACTERISTICS OF OILFIELD SURFACE CONSTRUCTION ENGINEERING

2.1 Complex Construction Technology

The construction of Oilfield Surface Construction Engineering is mainly to provide convenience for oilfield production, so as to effectively improve the efficiency of oil resource exploitation. Therefore, in the construction of Oilfield Surface Construction Engineering, the staff should not only pay attention to the construction quality of the project, but also proceed

from the actual situation of oilfield production, so that the surface construction engineering can play a greater role in oilfield production. In order to meet the needs of both engineering quality and actual production, the staff need to screen and apply various construction technologies scientifically and reasonably. It makes the construction of oilfield surface construction engineering smoother and more orderly. However, some construction techniques can significantly improve the overall performance of Oilfield Surface Construction Engineering [1]. But it also poses a great challenge to the construction work of the staff. Once any sudden situation occurs in the construction process, it will not only have a very serious impact on the overall quality and construction progress of the oilfield surface construction project. It will also increase the construction risk of the project site, which will threaten the life safety of the construction personnel.

2.2 There Are Many Influencing Factors

The construction quantity of Oilfield Surface Construction Engineering is large, and the overall construction period is very long. Moreover, in the construction process, there are many influencing factors, which have a great impact on the overall quality and construction progress of the construction project. It also makes the construction risk greatly increased, which is very easy to cause various safety accidents. There are two common influencing factors in the construction of Oilfield Surface Construction Engineering, including natural factors and human factors. No matter the bad weather and climate, or the geological changes in the construction site, will hinder the orderly construction of the oilfield surface construction project, and make the construction progress stagnant. So that the overall cost of construction projects also increased, so that the construction unit is facing greater financial pressure [2]. Human factors usually refer to the nonstandard operation of construction personnel, which will directly lead to the quality decline of Oilfield Surface Construction Engineering. It will not only shorten the service life of the construction project, but also lay a huge potential safety hazard for the subsequent production work of the oilfield. Although China attaches great importance to the safety construction of Oilfield Surface Construction Engineering, it is still unable to completely reduce the impact of various

factors on the construction operation [3].

3. MAIN MANAGEMENT CONTENTS OF CONSTRUCTION PROJECT PREPARATION STAGE

3.1 Design Drawing Review

The design of construction drawings is not only the construction premise of Oilfield Surface Construction Engineering, but also the important guarantee of engineering quality. In the drawing design of Oilfield Surface Construction Engineering, the staff need to use advanced instruments and equipment to collect and analyze the data information of the construction site comprehensively. Combined with the actual situation of oilfield production and the construction level of the construction unit, the design of the first version of drawings and construction blueprint is completed. After the design of the original version of the drawing is completed, the relevant staff of each department shall conduct a strict and detailed review. For the follow-up construction of Oilfield Surface Construction Engineering, lay a good solid foundation [4]. In the traditional drawing review work, it is usually only completed by designers and reviewers, and the staff of the construction unit are not involved in it. The occurrence of this phenomenon makes the communication between the construction party and the designer not in place, which is very easy to appear the situation of "talking on paper", resulting in a series of problems in the construction process. Therefore, in order to make the construction operation of oilfield surface construction engineering more smoothly, the relevant personnel of the construction unit should be jointly consulted in the review of the first edition of drawings [5]. On the one hand, it can strengthen the communication between the two and improve the cooperation ability of department personnel. On the other hand, from the actual construction, the problems in the first edition of the drawings can be found and rectified in time, so that the feasibility of the drawings is greatly improved. For the follow-up construction work, do enough good bedding work. After the completion of the construction blueprint design work, it also needs the joint audit, cost, design, supervision and construction departments to conduct a scientific and comprehensive review. By collecting and answering the suggestions and opinions put forward by multi department staff, the coordination ability between departments can be significantly improved. In addition, the key construction parts shall be strictly reviewed, and appropriate adjustment and optimization shall be carried out when necessary to make the construction blueprint more convenient for the follow-up field operation [6]. In addition, the implementation of construction blueprint review can also reduce the number of changes in the subsequent construction process and reduce the workload of relevant personnel. So that the construction of oilfield surface construction engineering can be completed

more smoothly and orderly [7].

3.2 On Site Disclosure

After the construction drawings of Oilfield Surface Construction Engineering pass the review, the designers need to complete the on-site disclosure work with the relevant personnel of the construction unit. The main contents of the on-site disclosure include not only the specific conditions of the construction drawings, but also the details in the construction process. For the oilfield surface construction engineering construction efficiency, plays a good role in promoting. Moreover, the implementation of on-site disclosure can also make the construction unit pay attention to the construction of key parts, and significantly improve the overall quality of Oilfield Surface Construction Engineering [8].

3.3 Site Layout

In the construction site of Oilfield Surface Construction Engineering, scientific and reasonable layout work can play a good role in the prevention and control of safety accidents. Site layout work should follow the principle of from outside to inside, strictly control every corner, and minimize the safety risk of construction site. By establishing isolation belt and posting warning, non staff can be avoided to enter the site, and unnecessary personal injury and economic loss can be reduced [9]. Placing corresponding warning signs in the construction area according to the specific situation can attract the attention of construction personnel and improve the safety awareness of personnel in various departments. In addition, the inspection and layout of power supply lines and fire prevention facilities can also improve the safety factor of on-site construction and ensure the orderly construction of oilfield surface construction projects.

4. SUPERVISION AND MANAGEMENT DURING CONSTRUCTION

4.1 Reduce Construction Risk

Construction safety is the focus of oilfield surface construction project management, and is also the premise to ensure the orderly progress of construction. Due to the frequent use of a large number of mechanical equipment in the construction of Oilfield Surface Construction Engineering, even involves high-altitude operation. Therefore, in the field construction of Oilfield Surface Construction Engineering, management personnel should start from the safety point of view. Through good and effective measures and means, on the premise of ensuring the safety of the construction site, the smooth and orderly construction of the construction project is supervised. And reduce the probability of accidents, avoid unnecessary economic losses and casualties. Through regular maintenance and repair of mechanical equipment, the overall performance of the equipment can be improved, and the sensitivity and accuracy of the equipment can meet the needs of engineering

construction. The construction quality of Oilfield Surface Construction Engineering is also well guaranteed [10]. Before using large-scale mechanical equipment or high-altitude operation, the staff shall formulate a detailed construction scheme and obtain the approval of relevant departments. Under the real-time supervision of professional staff, it is necessary to carry out high-difficulty construction work on the project site. Moreover, in the construction of some dangerous projects, the relevant personnel should not only carry out a comprehensive inspection of the mechanical equipment used to ensure the safety and stability of the follow-up construction. We also need to do a good job of protection, improve the control ability to deal with emergencies, reduce the impact of accidents to the minimum, so that the oilfield surface construction project can be completed on schedule.

4.2 Construction Quality Control

The construction quality of oilfield surface construction engineering plays a decisive role in the application of oilfield production projects. Due to the large amount of work and high-quality requirements, in the construction quality management work, the relevant staff should carry out real-time inspection of each process. That is, every time a construction process is completed, the supervision personnel will inspect the oilfield surface construction project according to the construction quality standard. Only when the quality inspection is qualified, the next step of construction can be carried out. Although this construction quality inspection method is more complicated, it can find the quality problems in the construction process in time, and take corresponding measures for timely rectification, so as to ensure the overall quality of Oilfield Surface Construction Engineering.

4.3 Control of Construction Progress

The construction progress of Oilfield Surface Construction Engineering is closely related to the overall construction period and the overall cost of the construction project. Strengthening the control of construction progress can avoid the phenomenon of project delay and maintain the good business image of the construction unit. Also make the construction unit project cost management ability, get significant and effective promotion. In the process of controlling the construction progress, construction safety and construction quality should be taken as the premise. Only under the guarantee of the life safety and engineering quality of construction personnel, can the construction progress be truly and effectively managed and controlled. Otherwise, the cart before the horse will appear. Not only can not improve the management ability of construction progress, but will further extend the overall construction period of the project, and even delay the project. But in the construction of Oilfield Surface Construction Engineering, affected by many factors, the management of construction progress is

greatly hindered. In order to make the oilfield surface construction project can be completed on schedule, the staff should work out the corresponding construction plan according to the construction status, and strictly control the overall construction efficiency of the project. According to the current situation of oilfield construction, the number of construction personnel and the total construction period should be combined with the construction schedule and the total number of construction personnel. Only by making plans from all aspects, can the oilfield surface construction project be completed in an orderly manner, and the oilfield production projects can be put into use as soon as possible.

4.4 Department Cooperation Construction

In the construction of Oilfield Surface Construction Engineering, not only the construction personnel and management personnel need to cooperate with each other, but also need to coordinate and cooperate with financial personnel, design personnel and procurement personnel. Only through the cooperation of multiple departments, can the construction efficiency of Oilfield Surface Construction Engineering be significantly and effectively improved, and the core competitiveness of construction units will be greatly enhanced. Moreover, the sharing of internal information resources can further improve the construction level of the construction unit, greatly reduce the occurrence probability of various errors in the construction process, and greatly reduce the construction risk. Once there are problems in the construction process, the problem can be solved quickly and effectively through the brainstorming of staff from multiple departments. It provides good help for the next construction of Oilfield Surface Construction Engineering. It can be seen that coordinating the relationship between various departments plays a very important role in the orderly construction of Oilfield Surface Construction Engineering, which is also a major point in the construction project management.

4.5 On Site Visa Processing

In the change of on-site visa, seven principles should be strictly observed: accurate calculation, seeking truth from facts, timely processing, avoiding duplication, waste recycling, on-site tracking and appropriate authorization. The principle of accurate calculation means that when changing the visa, through the collection, summary and repeated verification of data information, we should try our best to ensure the accuracy and detail of various data, and complete the processing of related work in a short time, so as to provide convenience for the follow-up work. When the specific calculation results can be obtained, the change basis with the engineering quantity as the visa shall be preferred, and the number of man days and machine shifts shall not be selected. The principle of seeking truth from facts refers to filling in relevant

data information according to the actual situation. When the detailed calculation of the engineering quantity cannot be obtained, the number of man days and machine shifts should be signed to avoid the phenomenon of over signing, less signing and repeated signing. In order to reduce the probability of duplication of work, it is necessary to enhance the ability of the personnel to handle mistakes effectively. Because many of the site visa are obstacle removal and measure engineering, the contractor, site supervision personnel and cost audit personnel should go to the site to check together before the cost is incurred. When the materials and equipment in the construction process are recycled, the waste recycling work shall be done well, and the relevant certificate shall be issued by the recycling unit. The principle of appropriate authorization is to clarify the authority, responsible person and form of on-site visa, which makes the on-site visa processing more rule-based. It is also the efficiency of on-site visa processing, which has been greatly improved.

5. SUPERVISION AND CONTROL OF PROJECT COMPLETION ACCEPTANCE

The completion acceptance of oilfield surface construction project mainly includes three parts: handover acceptance, trial operation and verification data. In the process of project completion acceptance, the staff should strictly follow the principle of fairness and objectivity to ensure the consistency between the actual situation and the acceptance information. For the development of oilfield production work, lay a good solid foundation. Moreover, when the handover acceptance and trial operation acceptance are completed, the staff should check the relevant data of the project to ensure that the data are comprehensive, complete, true and effective. It provides important information reference for the follow-up use of Oilfield Surface Construction Engineering.

6. CONCLUSION

Through the in-depth understanding of the construction characteristics and management contents of Oilfield Surface Construction Engineering, it can be found that strengthening the management of engineering projects should not only start from drawing review and site layout, but also scientifically and reasonably control the on-site construction and

completion acceptance. With good and effective measures, strict management of construction safety, construction quality and construction progress can significantly improve the overall performance of oilfield surface construction projects. It will provide good help for the orderly development of China's oil industry.

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Research on The Application of Computer Information Management Technology in Network Security

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Abstract: Under the background of the rapid development of society, the level of science and technology in China shows an increasing trend. Computer information management technology has a wide application space in various fields of society, so that our lifestyle has undergone qualitative changes. The application of computer information management technology is of practical significance, but it is undeniable that due to various unsafe factors, network security problems appear repeatedly, thus seriously hindering the long-term and stable development of enterprises and social economy. Therefore, this paper will focus on the application of computer information management technology in network security as the theme to carry out the analysis, through a detailed understanding of the current computer information management technology in the network security application of weak links, and then put forward to promote the computer information management technology in the network security application of feasible countermeasures.

Keywords: Computer Security; Network; Management

1.FOR THE CURRENT COMPUTER INFORMATION MANAGEMENT TECHNOLOGY IN THE APPLICATION OF NETWORK SECURITY THERE ARE WEAK LINKS TO EXPLORE

At present, there are still various weak links in the application of computer information management technology in network security, which are mainly reflected in the following points. First, there is no standardized and professional technical operation. Although China's network technology is constantly optimized and improved, some people have not formed a good sense of network security and have not carried out network security maintenance in computer information management, so that there are various security problems to be solved. The existence of various hidden dangers will not only have a negative impact on daily life, but also seriously threaten the safety of life and property. At the same time, the network management system lacks professionalism. It will also hinder the normal operation of the network system. Second, the existing network security problems [1-4]. When there are network loopholes, viruses, Trojans and hackers' illegal invasion will be

formed, so that the computer can not be used normally, and even lead to information leakage. Although anti vulnerability technology can be installed, it cannot ensure network security in essence. Therefore, it is necessary to significantly improve computer information management technology, realize the innovation and optimization of information management system, and improve the security of network use [1].

2.FOR THE PROMOTION OF COMPUTER INFORMATION MANAGEMENT TECHNOLOGY IN THE APPLICATION OF NETWORK SECURITY FEASIBLE COUNTERMEASURES

2.1 Implement The Construction Of Information Platform

First of all, we should implement the construction of information platform. As a qualified manager, we should have a deeper understanding and understanding of network communication. Only if we have a deep grasp of network communication, can we grasp its characteristics, and carry out the network communication of network security maintenance on the information platform to provide guarantee, maximize the public's network security awareness, and realize the personal safety of using the network. At the same time, as the information platform personnel should summarize the daily network security problems at the first time. For example, if there are network security vulnerabilities and Trojan virus problems, they should be summarized and summarized to provide reference for the majority of the audience, so as to effectively avoid the existing risk factors. It is also necessary to carry out quality education to improve the professional skills and comprehensive quality of information platform staff. When the staff's comprehensive quality and professional ability are improved, they will study and analyze the suspicious code system more efficiently, and take effective measures to deal with it [2].

2.2 Building a Perfect Management System

Secondly, the construction of a sound management system to promote the application of computer information management technology in network security. Network security units should pay attention to the following work to build a sound management system. First, the establishment of post system. We should be aware that only by formulating the relevant

system as a constraint, can we ensure that the behavior is normative. And the establishment of a sound post system will allow staff to have a more clear and comprehensive understanding of the post content, the implementation of the norms of their own behavior. Second, formulate training system. The development of training is very important, for the relevant technical personnel, their own professional skills and comprehensive quality are uneven, and management personnel should regularly organize technical personnel to understand the latest trends of network security, and realize mutual communication, so as to improve their professional quality and skills, and become an outstanding talent of network security maintenance. Third, the implementation of the post responsibility system, so that staff clear their own responsibilities and obligations, avoid mutual shirking responsibility, and promote mutual supervision and mutual promotion among employees, so as to promote the enterprise always in a high-speed operation state, avoid the problems of improper working attitude of some staff, and reduce unnecessary loopholes and low-level errors It has far-reaching influence to avoid various network security problems.

2.3 Actively Improve Encryption Technology

Finally, it significantly improves the encryption technology in network security. In the context of the rapid development of the current society, we should take effective measures to improve the overall level of encryption technology in network security, in order to reduce the occurrence of various network security problems, and in the current society, the reasonable application of computer information management technology in network security has become the main direction of network security progress. At the same time, in order to realize the security of computer information management technology in network application, we should also optimize the computer network operating system. It should be noted that the computer network system in the actual use process may be due to its own problems and failure, so that the computer system can not be in normal operation. At this time, we should pay attention to the security protection of the computer operating system to achieve regular virus detection and killing of the network system, and in the use of the network system, we should have a sense of prevention, actively look for and identify the loopholes in the system, and implement the repair after finding the loopholes.

The firewall system can form a protection barrier between the inside and outside of the computer network, through this means to realize the real-time monitoring and protection of the network, and prevent

the data information from being tampered, lost and leaked due to the network insecurity in the transmission. Moreover, after installing the fire protection software, the internal information will be protected. Unauthorized external users of the network can not access the internal information of the network. For example, a certain enterprise uses computer information management technology to set data access rights for users in the daily office system. Only users with full access rights can access to data, which will maximize the means Improve the security of network information [4].

3.CONCLUSION

Through the analysis of the above problems, we fully realize the importance of applying computer information management technology in network security. In the context of the current information age, network security has become the main concern of all walks of life. To implement and strengthen network security management can not only protect people's privacy and property security, but also ensure the security of enterprises and state secrets. Therefore, the application of computer information management technology in network security is of practical significance, which requires managers at all levels to look at the current problems in the application of network security with a correct perspective, so as to realize the implementation of the construction of information platform, the construction of a sound management system and the active promotion of encryption technology in subsequent applications, so as to improve the use of the network It can avoid the invasion of illegal personnel and virus, and lay a solid foundation for the normal operation of the network.

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Research on The Development of College Football Teaching Under the Background of Campus Football

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Abstract: With the deepening of China's new curriculum standard reform and teaching innovation, the "notice on the development of national youth football activities" was issued in 2019, which clearly pointed out that from primary school to university, it is necessary to follow the teaching principle of guiding and encouraging students to comprehensively cultivate social professional football talents. On the one hand, this notice is to improve the physical quality of contemporary students and exercise their willpower. On the other hand, it is to make up for the current lack of sports in China, expand the number of participants and social attention in the field of football, so that football skills and football knowledge can enter the public's vision. At the same time, this measure can not only effectively improve and correct the shortcomings of college football course teaching, but also help promote the innovation and good development of football class teaching in college physical education curriculum.

Key words: Campus football; College football; Course teaching

1. INTRODUCTION

Football is an important part of college physical education teaching. As early as 2015, the Ministry of education formulated the "national youth campus Football Teaching Guide (Trial)" to clarify the development of campus football activities, curriculum teaching, as well as the final stage goals and specific implementation norms, aiming to improve the quality and efficiency of college football teaching. Campus football refers to a football development policy on campus. It is a development plan guided and guided by the General Administration of sports and the Ministry of education. By combining with the current university teaching, it further realizes the college education plan of "cultivating morality and cultivating students' comprehensive quality", so as to fully promote the overall development of students.

2. THE IMPORTANCE OF COLLEGE SPORTS FOOTBALL COURSE

2.1 Enhance Students' Sports Skills

The cultivation of students' sports skills is an important teaching goal from the beginning of primary school entrance. With the growth of students' age and the development of their body and mind, in order to

keep up with the pace of students' growth, the cultivation of sports skills continues to deepen teaching. The purpose of physical education teaching in Colleges and universities in China is to enhance students' physical quality, comprehensive quality and sports skills. Football course, as a comprehensive sports sport, can help students improve the physical coordination of ball games, exercise leg strength and skills, and enhance the mastery of sports skills. Football needs good physical support and on-the-spot adaptability. Active participation can not only better stimulate students' inner enthusiasm, but also fully enhance the ability to master personal sports skills [1].

2.2 Promote The Overall Development Of Students And Improve Their Comprehensive Quality

With the progress of society and the improvement of people's living standards, Chinese citizens pay more and more attention to competitive sports, which has gradually become the public's hobby and living habits after lunch. From the perspective of students, the development of college football course is conducive to the cultivation of students' competitive ability, competitive psychology and positive learning attitude, and an entertainment project of relaxing mood and relieving pressure is added in the process of tense and depressed learning [2-4]. In addition, football needs good team cooperation ability and collective sense of honor. It is an effective way to help students improve their team consciousness, obey orders, and establish the mentality of sharing weal and woe. It is also an excellent sport that can cultivate students' good psychological quality such as winning without pride and losing without being discouraged. Growing up in adversity and progressing under pressure is a more favorable way to promote students' all-round development and cultivate their comprehensive quality.

3. IMPROVEMENT MEASURES OF COLLEGE FOOTBALL COURSE TEACHING UNDER THE BACKGROUND OF CAMPUS FOOTBALL

3.1 Improve The Teaching Level Of Campus Football With The Help Of The Advantages Of Campus Football Policy

Under the background of campus football, the state and the government strongly support the construction of football training venues, the development of football training courses, and the establishment of football competitive events, so as to provide better

football learning atmosphere for students. Therefore, in order to further cultivate students' interest in football and stimulate their enthusiasm in football class, football teaching should be focused on classroom teaching design, football skills training, teaching evaluation and teaching research, so as to improve school football teaching level and ensure campus football can be regulated Carry out in-depth, long-term and efficient manner [3].

3.2 Fully Carry Out Curriculum Teaching Reform And Innovation To Promote The Development Of College Football

The main camp of campus football activities is football classroom teaching in Colleges and universities. The opening process of this football course teaching needs to fully combine the students' needs for sports and their interest in football learning, and make teaching plans, classroom design and training arrangements according to the individual differences of teaching objects. For example, simple football training competition, football cultural knowledge popularization competition, group antagonism competition and other teaching methods are used to mobilize students' classroom enthusiasm and stimulate students' interest in learning, training and competition [4]. In addition, the establishment of a sound teaching evaluation system, so that the campus teaching evaluation of diversified development, so that the dimensions of evaluation can be involved in the level of football learning, mastering, participation, and so on, so as to promote the efficiency of college football classroom teaching under the background of campus football. In addition, colleges and universities can also appropriately increase football training hours, improve students' ability to "learn", "practice" and "match" in football, so as to lay a good foundation for the development of college football teaching.

3.3 Enhance The Professional Quality And Professional Ability Of Football Teachers And Coaches

In order to achieve good results in football course teaching in Colleges and universities, excellent teachers and coaches are absolutely indispensable. Therefore, the school needs to improve the recruitment threshold of football teachers and provide excellent and professional teaching staff for students. To enhance the professional quality and professional ability of football classroom teaching teachers can encourage teachers to carry out on-the-job training, regularly carry out online and offline learning, academic seminars, or a practical competition with teachers and students of other schools. The improvement of teachers and coaches' professional ability can better drive students to improve themselves.

3.4 Actively Tap The Resources Inside And Outside The School To Enrich The Teaching Content

Although the scope of campus football is defined as campus, it does not mean that it must be limited. Colleges and universities can fully tap the favorable

resources inside and outside the school, make up for the lack of football projects, improve the relevant football training equipment and improve the shortage of funds for team training [5]. Through school enterprise cooperation and other ways, we can cooperate with football clubs outside the school to obtain various forms of sponsorship, such as team uniforms, funds and advertisements, so as to alleviate the dilemma faced by the development of campus football. The cooperation of resources inside and outside the school can choose to participate in more football matches suitable for students, "promoting training by matches and improving quality by competitions", so as to improve students' competitive ability and special training ability, so as to promote the development of college football teaching under the background of campus football.

4. CONCLUSION

To sum up, there are some shortcomings and misunderstandings in college football teaching under the background of campus football. Teachers, schools and relevant departments need to work together to improve and innovate the football course teaching in Colleges and universities in a timely manner. It is necessary to strictly conform to the individual differences in the growth and development of college students, and adopt the teaching method of teaching students in accordance with their aptitude to ensure the completion of teaching Integrity and scientificity. Based on this, the innovation and development of college football course teaching under the background of campus football not only enables students to have a more appropriate way to enhance their comprehensive quality, but also improves the social status of football projects, so as to achieve the goal of cultivating more excellent social application-oriented talents in Colleges and universities, and contribute to the development of football in China.

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Application of Big Data Technology in Computer Network Information Management

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Abstract: With the development of science and technology, under the background of the Internet era, the development of big data technology promotes its deep application in more fields. Big data technology and computer network are perfectly combined, and computer information management technology is the main driving force for the development of modern society. Computer network is an essential communication tool for modern social life and work. It provides convenience to modern social life to a large extent, and also changes people's way of thinking and working. The integration of big data technology greatly improves the working efficiency of computer network, and provides great technical support for computer network information management.

Keywords: Big data technology; Computer; Network information management; Application

1. OVERVIEW OF BIG DATA TECHNOLOGY

Big data technology is a modern information processing mode, which can store a huge amount of data and has high commercial value. In recent years, it has been gradually applied to various industries and fields, such as enterprise management, clinical education, training institutions, etc., but with the wide application of big data technology, network information management issues are also more concerned. The amount of data of computer network information management is very huge, from all kinds of social data. In order to integrate and analyze the data accurately and smoothly, computer network information management must analyze with the help of big data technology, and constantly improve the processing ability of data information. Through the analysis and classification of enterprise data, we can choose the data that is more conducive to the development of the enterprise itself, so as to promote the business value [1-3]. Big data technology is also the best way to improve the efficiency of computer network information management. Through the application of big data technology, unconventional processing mode is used in network information management. The traditional information management technology mainly uses manual work, resulting in many human error problems. At the same time, it affects the efficiency of information management. The application of big data technology can improve the efficiency of information management Only with high

accuracy of information data can we have more information assets with better process optimization ability and obtain more valuable data resources, which greatly improves the efficiency of information management and effectively reduces the waste of human, material and time costs.

2. APPLICATION STATUS OF BIG DATA TECHNOLOGY

2.1 The statistical technology is not professional enough. For the analysis and application of big data technology, the most important point is to accurately analyze and apply the information. In the process of information collection and statistics, the computer has higher professional and technical requirements for the staff, which requires the staff to check and manage the internal operation of the system. If there are problems in the system, the staff need to make decisions and respond quickly Measures, but in some industry operations, the staff's technology is not professional enough, there is a great lack of technical ability in the analysis of information data and practical operation, and with the continuous development and update of network technology, the configuration of network is getting higher and higher, and network security and information transmission technology need further improvement, network security issues are more and more concerned by people The technical operation problems of the staff also need to be further strengthened training, so that the staff can make corresponding technical innovation and prevent some errors in the data analysis process.

2.2 The lack of information data and low storage capacity. Information collection is the most important link in big data analysis. Information collection must be comprehensive and accurate. If the information collection is not comprehensive and there are omissions, it will lead to problems in later information analysis and processing, and the value of information will be greatly reduced. A large number of data and information generated in many professional fields have complex sources and transmission channels, and involve a wide range of fields and specialties. Some of the information cannot be stored in the system due to the huge amount of data and information, and the original storage space of the system cannot meet the data storage requirements. In the process of data sharing, the source of information is complex, which cannot effectively achieve efficient sharing, resulting

in the real value of information cannot be fully played. 2.3 The information system is relatively backward and not practical. The operation efficiency of information system affects the processing of information data. The backwardness of the system cannot meet the processing of a large number of data. There is no way to store a large number of dynamic data comprehensively and properly, which increases the difficulty of computer data analysis. The framework of information system needs to be further improved and developed. The data collection should be consistent with the objective facts Yes.

3.APPLICATION OF BIG DATA TECHNOLOGY IN COMPUTER NETWORK INFORMATION MANAGEMENT

3.1 Application of data backup in computer network information management. Under the background of the rapid development of science and technology and economy in the new era, the business environment and information data are becoming more and more complex. People pay more attention to their own information security. Many enterprises and professional fields need to protect their own information and data from different aspects, so as to avoid errors in the operation of computer network. Data backup should choose the appropriate and safe way, combined with the actual situation of its own development, to ensure the safety and accuracy of data. Secure system service is the basic guarantee of computer information security, and provides effective protection for people to choose backup information security.

3.2 Application of cloud computing in computer network information management. Cloud computing technology has the characteristics of wide range, high efficiency and many functions. It brings innovation to computer network information management, improves the security of network information management, and provides users with a more convenient service mode. Cloud computing technology improves the operation system of network information management, and forms a more perfect network information management system by means of cross domain and multi-platform cooperation, which helps the staff to quickly find out the existing problems and make solutions, which is conducive to the integration of cloud computing technology and computer network information management, and is the further development of cloud computing technology The exhibition also contributes to the security and establishment of computer network information management.

4.EFFECTIVE MEASURES TO IMPROVE THE APPLICATION ABILITY OF BIG DATA

Improve the professional and comprehensive ability of information management staff. In the integration of

big data technology and computer network information management, the professional technical level and comprehensive ability of staff are the key, and the working level and professional comprehensive ability of staff affect the security and efficiency of network information management. It is necessary to strengthen the staff's understanding and understanding of big data technology, publicize the application concept of big data technology, strengthen the staff's attention to the information management of big data technology, vigorously introduce excellent technical talents from relevant enterprises, train existing staff, improve the technical level of information management staff, establish a scientific and perfect information management mechanism, and ensure big data technology and computer network information management fully integrated, so as to improve the efficiency of information management.

5.CONCLUSION

The development of big data technology and the integration of computer network technology have been widely used, which not only reduces the cost of network information management, but also improves the quality and efficiency of information management, providing strong technical support for computer network information management. However, there are still some problems. The analysis and research of related problems in computer network information management still need to be improved. It is required to expand the framework of big data technology, build a solid technical foundation for the application of big data technology in computer network information management, give full play to the greatest advantages of big data technology, and promote the good development of modern information technology.

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Analysis on the Effective Integration Path of Ideological and Political Education and Student Management in Colleges and Universities

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Abstract: With the increasing popularity of network technology, the way for college students to obtain information is more convenient. College students have not formed a sound personality, a lot of information is easy to affect the attitude of students to see things, thus changing the values of students. In order to further ensure that students can develop comprehensive ability and inherit good moral sentiment, ideological and political education in Colleges and universities has become particularly important. Only by realizing the high integration of student management and ideological and political education, can we make up for the deficiencies, continuously optimize the teaching quality, and lay the foundation for the overall development of students.

Keywords: College Thinking and Politics; Student Management; Integration Path

1. INTRODUCTION

Ideological and political education in Colleges and universities plays an important role in the growth of students, is an advanced means of education. In the opinion issued by the State Council in 17 years, it was pointed out that colleges and universities are the main places for cultivating comprehensive talents. It is an important political task to take effective measures to improve the ideological and political education in Colleges and universities, which needs to be highly concerned by the society and the country [1-4].

In the new era, the society needs more and more comprehensive talents with noble feelings. To a certain extent, this determines the necessity of Ideological and political education and the scientific nature of the integration with student management, which has a very positive guiding role. Integrating the thought of ideological education into student management can not only improve the ideological and political education environment, but also further strengthen the functions of teachers, constantly improve the student management mechanism, and realize the benign development of the school.

1.1 Optimizing the results of education in politics and government.

Ideological and political education in Colleges and

universities has always been highly valued and occupies an important position. There is a direct relationship between the quality of education and the stable and long-term development of students. However, from the current situation, there are still weak links in Ideological and political education in Colleges and universities, and the results of Ideological and political education are not ideal. This is mainly because students' interest is not high and ideological and political education is not paid enough attention to, so it is far from the actual education goal. High integration of Ideological and political education in student management can make up for the lack of education at this stage, and play a role in optimizing the results of Ideological and political education. At the same time, the integration of the two can also create an educational environment suitable for students' growth and create conditions for the improvement of students' Ideological and political learning ability.

1.2 Ensure the quality of student management.

The integration of the two is not only conducive to the improvement of Ideological and political education level in Colleges and universities, but also can improve the student management mechanism, optimize the management process, improve the management efficiency, and push the student management work to a new height. As far as the current situation is concerned, student management is often superficial and does not play a substantive role. Integrating the advanced ideas of Ideological and political education into the daily student management can highlight the functions of teachers, improve and strengthen the student management mechanism, and promote the sustainable development of colleges and universities.

2. RESEARCH ON INTEGRATION PATH

2.1 Create a multi-platform to achieve a high degree of integration with curriculum management

The ideological and political education in the new era should keep pace with the times, integrate the ideological and political education ideas into all levels of student management, create a diversified platform, and broaden the channels of integration. First of all, it

can realize the organic combination with curriculum management, and create a suitable teaching environment by optimizing the curriculum management, so as to provide a good guarantee for ideological and political education. Specifically, it can be achieved through the construction of curriculum platform, so as to enhance the effectiveness of Ideological and political education, so that the education system can be continuously optimized and improved. Curriculum design needs to be integrated into the content of Ideological and political education, give full play to the greatest advantages of Ideological and political education, through the integration of Ideological and political knowledge and professional knowledge, constantly enrich the ideological and political content, and finally achieve the goal of high integration with management work. In daily teaching, ideological and political teachers should learn to make students interested in Ideological and political learning with the help of student management cases, so as to internalize ideological and political content. For example, when talking about the relevant knowledge of modern Chinese history, we can use advanced VR technology to let students "walk the long march again" in class, and stimulate their thinking about how to strengthen the country. At the same time, students can also be assigned some exploratory tasks, so that students can find relevant information after class. Through the way of student management, the content of Ideological and political education can be integrated into the students' heart, so that students can change from passive to active, willing to think actively, and cultivate moral sentiment imperceptibly. In the new era, ideological and political education should adopt new methods, make full use of network resources and advanced teaching equipment, integrate ideological and political content into daily curriculum management from all aspects, and create a good environment for the overall development of students.

2.2 Implement the training program and realize the high integration with the teacher management.

In practical education, if we want to play the real effectiveness of Ideological and political work, we must have a high-quality team of teachers. However, from the current situation, many of the ideological and political teachers in Colleges and universities are not talents of their own specialty. Under the influence of the comprehensive effect, there is a big gap between the ideological and political education and the ideal goal, and the lack of experience of management personnel, which seriously hinders the long-term development of colleges and universities. This situation is particularly common in Colleges and universities without integrated work experience, because such colleges and universities are lack of talents, coupled with the imperfect management system, cannot meet the ideological needs of students. If this state cannot be improved for a long time,

students will have a sense of distrust. Once this sense of distrust occurs, the actual effect of student management will be difficult to guarantee. According to the relevant provisions of the state, colleges and universities must be equipped with a certain number of teaching and management personnel. Therefore, in order to achieve rapid development, colleges and universities need to increase the investment of excellent talents and improve the situation of serious shortage of teachers and administrators. Through the optimization of student management process, help managers solve the problem of disorderly work, formulate and improve the system, fully implement the talent training program, and accelerate the integration speed of all aspects.

2.3 Change the concept of education and realize the high integration with the daily management of the school

Student management is a relatively systematic work, involving more content. At the same time, it is also the core content and an important part of the daily management of colleges and universities. In the practical work, the management concept held by the managers will have a direct impact on the management effect. Ideological and political education in Colleges and universities is a compulsory course about quality cultivation. In today's society, with the popularization of network technology, the environment in which students live is more open. If the traditional management methods are still used, the effective implementation of Ideological and political education will be seriously hindered. In view of the problems existing in student management at this stage, we must try and innovate. Integrating Ideological and political content into management can effectively improve the current situation of management. Students can better restrain their own behavior and realize the integrated development of management and education while improving their ideological awareness. In view of this, if we want to see the actual good effect as soon as possible, we should start from the ideological level, innovate the traditional education concept, take ideological and political education as an important means to improve the level of daily management, and realize the perfect combination of the two. Most of the traditional ideas are conservative and lack of innovation consciousness. As the most dynamic group in the new era, college students are very resistant to the conservative ideas ideologically. If they are not changed, the daily management work will be difficult to implement. In practical work, colleges and universities should make full use of Ideological and political content, combine it with social environment, actively advocate managers to change their ideas, carry out relevant management work around ideological and political education content, adopt humanistic management mode, and constantly improve students' management level. This innovative

management method can reduce students' resistance, help students develop a sound personality and achieve all-round development.

3.CONCLUSION

To sum up, this integrated development management model has obviously become the mainstream development trend, and has a very positive significance. With the development of the times, whether in Ideological and political education or in student management, colleges and universities should follow the pace of the times, make full use of advanced teaching technology and management means, realize the perfect integration of student management and ideological and political education in Colleges and universities, and provide a large number of useful talents for the country.

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Research on The Construction of Collaborative Education System Of "School, Government, Administration and Enterprise" Under the Mode of Group School Running

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Abstract: With the rapid development of social economy, as a support for social development and continuous training of talents for social development, education is also in constant reform, in order to cultivate more excellent and more in line with social development. At present, education has been aware of the disadvantages of traditional education, and has completed the new curriculum reform. In education and teaching, we no longer focus on the cultivation of knowledge-based talents, but pay more attention to the cultivation of applied talents. Under this educational situation, the group school running mode is widely used in the teaching of higher vocational colleges, forming a teaching mode in which schools, governments, industries and enterprises participate in education together. Under the group mode of running a school, the system of "school administration, administration, administration and enterprise" can be constructed and continuously improved, which is conducive to the cultivation of more outstanding talents. The following is the specific analysis and elaboration on the construction of collaborative education system of "school administration, administration and enterprise" under the group school running mode.

Keywords: Collectivized school running mode; School administration and enterprise management; Collaborative education; system construction

1. ANALYSIS AND OVERVIEW OF COLLABORATIVE EDUCATION OF "SCHOOL, GOVERNMENT, ADMINISTRATION AND ENTERPRISE" UNDER THE GROUP TEACHING MODE

Education is a major event related to national development and social development. It is closely related to the national economy and the people's livelihood and the future of the nation. It is precisely because of the support of education that the country and society can develop stably and smoothly. Therefore, the state has always attached great importance to education, and constantly examines the problems existing in education under the background of the continuous development of the times and society

Make positive changes. After the completion of the new curriculum reform of education, its educational concept and teaching mode have changed. Many new teaching models have been proposed and applied to practical teaching, and group teaching mode is one of them.

The so-called group teaching mode is a school running mode in which famous schools and other schools form a school community with administrative instructions as the main and the common will of schools as the auxiliary. In this teaching mode, we should take famous schools as the leader, unify the management of education ideas, school management, education evaluation, school asset management and other aspects, give full play to the leading role of famous schools, so as to realize the sharing of various high-quality educational resources such as management, teachers, teaching infrastructure and so on between famous schools and other schools. The collaborative education of "school, government, industry and enterprise" refers to the joint participation of schools, governments, industries and enterprises in education, creating resources for education, giving full play to their own advantages and roles, scientifically participating in the distribution of educational resources, and jointly adjusting and optimizing teaching elements such as human resources, information and technology, so as to form complementary, promoting and combining production and education in education and teaching To create an efficient and stable education system with Chinese characteristics.

2. PROBLEMS EXISTING IN THE COLLABORATIVE EDUCATION OF "SCHOOL, GOVERNMENT, ADMINISTRATION AND ENTERPRISE" UNDER THE GROUP TEACHING MODE

Although the teaching method of "school administration, administration and enterprise" collaborative education has been implemented under the group teaching mode, due to the influence of many factors, there are still many problems in the process of its practice, which makes the teaching effect not ideal, which seriously hinders its effective implementation and the good development of students.

First, the role of the government has not been fully played. The group teaching mode is mainly based on administrative instructions, so the government plays an important role in it, but the government has not played an active role in guiding and coordinating, and has not continuously improved the policies, regulations and management system, which makes the implementation of the teaching mode lack of guidance and strength.

Second, the school has not formed an effective cooperative relationship with the industry and enterprises. In the development of its industry, some enterprises pay too much attention to economic benefits and are not willing to cooperate with the school in teaching. In addition, the school has not formed enough advantages to attract industry and enterprise to cooperate with it, which has caused great obstacles to the development of "school administration and enterprise".

Third, the school's teaching system is not perfect. Although some industries and enterprises actively cooperate with the school in teaching, the school has not formulated a sound teaching system, which makes many problems in the process of cooperation, affecting the teaching effect and teaching quality [2].

3. THE CONSTRUCTION OF COLLABORATIVE EDUCATION SYSTEM OF "SCHOOL, GOVERNMENT, ADMINISTRATION AND ENTERPRISE" UNDER THE GROUP TEACHING MODE

3.1 Government

The government should give full play to the role of promotion and promotion in the construction of the collaborative education system of "school, government, administration and enterprise" in the group teaching mode. Firstly, the government should use its own appeal to guide schools, industries and enterprises to participate in the teaching mode, do a good job in propaganda work, and improve the influence of "school, government, administration and enterprise"; secondly, the government should make good use of its own rights and regulations. Finally, the government departments should give full play to their own supervision and management functions, implement the obligations, responsibilities and behaviors of all parties in the "school administration and enterprise", and do a good job of supervision and management. To form binding force, it can also make corresponding punishment for its non-standard or inaction behavior, so that the teaching mode of "school administration, administration and enterprise" can give full play to the educational role, so that the students trained can become high-level and high-quality application-oriented talents [3].

3.2 School

As the most important and central school in "school administration, administration and enterprise", the role of the school should give full play to its own

educational advantages and functions, and develop education to the best with the help of the strength and resources of the government, industry and enterprise. First of all, the school should deeply study the connotation, goal and value of "school administration, administration and enterprise", integrate it into teaching, and actively construct curriculum system and collaborative education system, so as to provide greater and more powerful development space for "school administration, administration and enterprise"; secondly, schools should constantly cooperate with each other according to the actual situation of teaching, the changes of various educational resources and the changes of social situation. Finally, in this education system, in order to better train students, teachers are the most important, so that schools should make full use of the educational resources provided by various subjects, constantly organize teacher training, and strengthen teachers' training. To guide teachers to improve their comprehensive quality and teaching level, and to build a high-level teaching team to constantly improve the quality of teaching.

3.3 Industry And Enterprise

The school is a place to cultivate talents for industries and enterprises. In the education system of "school, government, administration and enterprise", industries and enterprises will benefit ultimately. Therefore, industries and enterprises should participate in it, actively play their own advantages and advantages, and help schools improve the quality of talents. Industries and enterprises are closely related to market and economic development. What they master is the direction, requirements and objectives of cultivating talents required by the school. The participation of industries and enterprises in the collaborative education system can not only help schools determine the direction of education, but also contribute to their own development, so that more talents are needed by their own development [4].

4. CONCLUSION

To sum up, "school administration and enterprise" under the group school running mode is the demand of social development and the trend of education development. It is a multiple education mode, which can not only improve the quality of talents, but also directly promote social development. Therefore, the government, schools, industries and enterprises should pay more attention to and actively participate in promoting the innovation, reform and development of education.

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Discussion on the Influence of Temperature Uniformity in Thermal Environment Test on Precision Optical Measurement

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Abstract: In this paper, the influence of temperature uniformity of thermal environment test on precision optical measurement is analyzed by means of experiment. First of all, the test equipment is introduced, including deformation measurement platform and optical shockproof measurement system. Then, the measurement results are analyzed, and the corresponding conclusions are drawn, hoping to provide reference for related industries.

Keywords: Thermal Environment; Temperature Uniformity; Precision Optical Measurement

1. INTRODUCTION

Light waves propagating in non-uniform turbulent flow field are common. However, in fact, turbulence can lead to many kinds of non-uniformity phenomena, which are mainly affected by various physical parameters, including temperature, density and refractive index. The change of these physical parameters is an important reason for the bad phenomena of the beam on the imaging plane, and the imaging quality will also decline. Therefore, it is of great significance to study this subject [1-2].

2. TEST EQUIPMENT

In order to explore the influence of temperature uniformity on precision optical measurement in isothermal environment test, the atmospheric high and low temperature thermal environment is simulated by means of experiment. On this basis, the test platform is built, and then the measurement data is recorded, analyzed, and finally the corresponding conclusions are drawn. The equipment used in this test includes the following:

2.1 Deformation measurement test platform

The deformation measurement test platform is composed of several parts, namely, the conveying pipeline, the test chamber, the fan, the air grid and the static pressure chamber. The air supply mode is up supply and down return. The test personnel can effectively control the air supply speed by adjusting the opening of the pipeline air valve. To ensure the test results, the wind needs to stay in the static chamber for a period of time before entering the test chamber. In the specific test stage, the stability of the pressure in the wall shall be ensured. At the same time, a variety of sensing devices are installed in the cavity to monitor the temperature of the test area [1].

2.2 Optical shock-proof measurement system

In the test stage, under the influence of centrifuge, the test platform will continuously vibrate. If the autocollimator and reflector are placed directly, the imaging quality will be affected under vibration. Therefore, the optical shock proof measurement platform is redesigned to separate the platform from the equipment such as reflector and autocollimator, which is helpful to improve the imaging quality.

3. TEST RESULTS AND DISCUSSION

In the following research, in order to ensure the accuracy of research conclusions, the following dimensionless parameters need to be introduced. The first parameter is Reynolds number, which can express the forced convection intensity: $Re = UL / \nu$. In this formula, the gas velocity at the inlet of the test chamber is expressed by U . The spatial characteristic scale of the test cavity is represented by L . The viscosity of gas is expressed by ν . This paper assumes that ν is constant.

3.1 Time average temperature distribution along the path of light propagation

As we all know, the temperature distribution of each point in the optical path will be affected by the natural convection intensity, which is also reflected in the test process. Based on this feature, the dimensionless temperature distribution of the optical path under different working conditions is obtained, as shown in Figure 1. In **Figure 1**, the position of the plane mirror is represented by $y = 0$; the position of the optical observation window is represented by $y = 0.5$. In the specific test stage, the observation window is a device to receive the measurement beam. After passing through the observation window, the light beam is reflected by the plane mirror. We can record the illuminating light as optical path a, and then the reflected light as optical path B. the optical imaging system will receive the light beam. Considering the uneven distribution of the test space, the time average parameters of optical path a and B must be different in the flow field. Compared with the characteristic scale of flow field, the deflection of beam is smaller. Under the influence of this kind of factor, the flow field parameters corresponding to irradiation path a and reflection path B tend to be the same. On this basis, the following conclusion is drawn: two times the deviation of one optical path is the total deviation of the beam

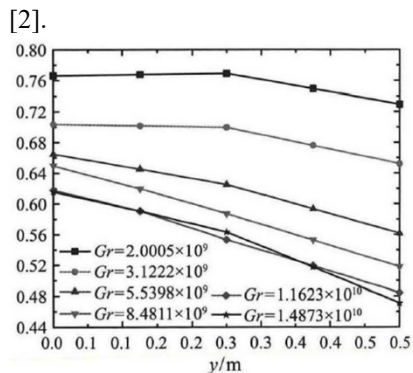


Figure 1. Dimensionless temperature distribution curve of each point on optical path

It can be seen from the above figure that the dimensionless temperature will continue to decrease and show an increasing trend when the working conditions are clear. The main reason is that the temperature boundary layer will be generated at the position adjacent to the cold wall, and the temperature will fluctuate after entering the boundary layer. Dimensionless temperature is inversely related to Grashov number. In short, the lower the dimensionless temperature is, the higher the Grashov number is. The results show that the difference between the wall temperature and the gas temperature in the cavity increases with the increase of the intensity of natural convection, and the temperature uniformity in the optical path is the same.

3.2 The effect of heat transfer intensity on beam offset

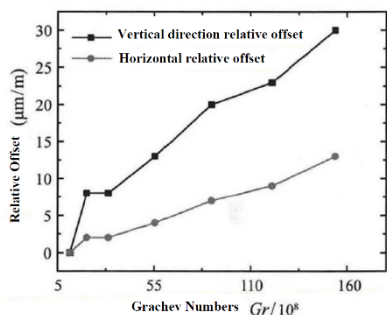


Figure 2. Relative deviation of light beam under different Grashov number

The effect of heat exchange intensity on beam offset is shown in Fig. 2. On the premise that the Reynolds number remains unchanged, the increase of Grashov number will lead to two situations. As follows: (1) the horizontal and vertical deviation of the beam will rise at the same time, which shows that the degree of beam deviation will be affected by the intensity of natural convection. In short, the propagation of light wave will shift under the influence of turbulent flow field. (2) Compared with the horizontal beam, the vertical beam

offset is significantly higher, and this effect will be amplified with the increase of Grashov number. This shows that the temperature in the horizontal direction of light is lower than that in the vertical direction under constant operating conditions, and the increase of the intensity of natural convection heat transfer is helpful to the increase of the temperature gradient in the vertical direction.

It can be seen from the data that under the condition of mixed convection heat transfer, the natural convection heat transfer condition is far more than the deviation in the vertical direction, but this situation will change under the condition of mixed convection heat transfer. It can be concluded that forced heat transfer will result in more significant temperature gradient changes in the vertical direction, while the horizontal temperature gradient is the opposite.

3.3 The influence of temperature uniformity on beam offset

Combined with the above, the degree of beam offset will be affected by the flow field distribution, mainly reflected in the refractive index and gradient distribution on the optical path. At the same time, the relationship between temperature and refractive index is very close, which is roughly consistent with the above-mentioned change rule. This shows that there is a direct relationship between the Grashov number and the intensity of natural convection heat transfer, and the increase of temperature inhomogeneity in the optical path is an important reason for the low cost of the beam.

4. CONCLUSION

To sum up, the influence of temperature uniformity of thermal environment test on precision optical measurement is studied by means of experiment. It is found that the reasons for low beam cost include temperature gradient, heat exchange intensity and time average temperature distribution on optical path. Therefore, it is an effective measure to control the gas velocity in the specific measurement stage to improve the measurement accuracy.

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Application of Automation Technology in Electronic Information Engineering Design

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Abstract: With the rapid development of social economy, science and technology, information technology and so on are also in continuous progress and have made great progress. Driven by science and technology, automation technology has been rapidly developed and widely used in electronic information engineering design, which greatly promotes the development of electronic information engineering design. Because of the importance of automation technology in electronic information engineering design, this paper analyzes and expounds the application of automation technology in electronic information engineering design from many aspects, hoping to promote the further good application and development of automation technology in electronic information engineering design.

Keywords: Electronic information engineering design; Automation technology; Application

1. BRIEF INTRODUCTION OF ELECTRONIC INFORMATION ENGINEERING AND AUTOMATION TECHNOLOGY

With the continuous development of information technology in China, China has entered the information age, which provides rich resources and powerful conditions for the development of electronic information engineering. What people call electronic information engineering is the engineering technology of electronic information control and information processing by applying modern technology such as computer. This engineering technology is mainly used to study the acquisition and processing of information, the design, development and application of electronic equipment and information system. The technologies involved mainly include modern electronic technology, information technology, communication technology, etc. In order to make the electronic information engineering get a good development, we must rely on the continuous progress of electronic information technology. The application of automation technology in electronic information engineering is of great significance to promote the development of electronic information engineering [1].

When it comes to automation technology, it is actually a comprehensive technology. Automation technology is closely related to computer technology, hydraulic pressure technology and even cybernetics and information theory. Automation technology is widely used, such as industrial automation, engineers can

digitally control automation equipment to complete high-risk, high-frequency or relatively single type of work, which can not only improve the safety of industrial production, but also greatly improve its work efficiency. Due to the great advantages of automation technology, the application of automation technology has been paid more and more attention [2].

2. THE APPLICATION OF AUTOMATION TECHNOLOGY IS OF GREAT SIGNIFICANCE TO ELECTRONIC INFORMATION ENGINEERING DESIGN

2.1 It Is Helpful To Improve The Efficiency Of Electronic Information Engineering Design

The application of automation technology in electronic information engineering design can reduce the use of labor by using computer and mechanical equipment operation, which has great benefits for electronic information engineering design, not only can save labor, but also can shorten working time, greatly help it improve work efficiency, at the same time, the application of automation technology can also promote electronic information The mechanization development of engineering.

2.2 It Is Conducive To Promote The Development Of Electronic Information Engineering Design To Intelligent Direction

In the process of electronic information engineering design, the advanced electronic information technology is mainly used to complete the information processing and control, through the comprehensive processing of information to better complete the work. But before the application of automation technology, in the process of electronic information engineering design, there are many links are designed and completed by manual operation, and the application of automation technology has replaced most of the manual operation work, and turned to computer operation, which not only effectively improves the accuracy of electronic information engineering design, but also promotes the electronic information engineering Process design is developing towards more intelligent direction.

2.3 It Can Effectively Promote The Overall Progress Of Electronic Information Engineering Design

Automation technology is not a single technology, which contains many aspects of technology and technology theory, and automation technology is also in constant progress, so the application of automation technology in electronic information engineering

design is actually the mutual integration and development of technology, this kind of fusion makes the electronic information engineering design realize intelligent control, automatic control and so on. The related problems are also solved, thus driving the development and progress of electronic information engineering design towards a more comprehensive and higher technical level [3].

3. APPLICATION OF AUTOMATION TECHNOLOGY IN ELECTRONIC INFORMATION ENGINEERING DESIGN

3.1 Application In Computer-Aided Design

The application of automation technology in electronic information engineering design is more common in computer aided design. The commonly used software of CAD is CAD, which is an important drawing software. It is widely used in industry, architecture, fashion design and other specialties. The application of computer aided design software can greatly improve the automation level, intelligent level and accuracy of electronic information engineering design. In the computer aided design software, the operator only needs to input the relevant data and requirements into the computer system, and the CAD design software can automatically process these data, so as to generate design drawings and output them. It has great advantages in improving the production efficiency of the industrial industry and meeting the construction requirements of the construction industry. In addition, the application of computer aided design software can save a lot of time and unnecessary trouble for the design of electronic information engineering. If there is an error in the design process and needs to be redrawn, then the operator only needs to modify the data and requirements in the computer system to get a new design drawing, which saves a lot of manpower and time.

3.2 Application In Computer-Aided Manufacturing

The application of automation technology in electronic information engineering design can also be reflected in computer aided manufacturing. Computer is composed of two parts, namely hardware and software. With the application of computer-aided manufacturing software, not only the accuracy of computer-aided manufacturing can be improved, but also the production efficiency of electronic information engineering design can be improved, so that the whole process is more smooth, efficient and constantly optimized and improved.

3.3 Automated Applications In Office

The application of automation technology in electronic information engineering design has also been fully reflected in office automation. In office

automation, computer technology, automation technology and other technical means are fully integrated to make modern office more efficient, simpler and more convenient. In the traditional office automation system, it mainly deals with document data, which lacks certain collaborative communication function. With the application of automation technology, modern office mode can not only process data documents and realize accurate calculation, but also strengthen communication and realize information sharing, so that all departments in the company can receive the latest data and information. Interest, can greatly reduce the work errors caused by lack of communication, so as to promote the overall work efficiency. In addition, in the current daily life, automation technology has also been widely used. For example, in the communication industry, the information platform built by automation technology can accurately record the user's phone charges and traffic, which provides great convenience for users. For example, people can quickly identify and classify the information on express bills by using automation technology, it has brought great convenience to people's production and life.

4. CONCLUSION

To sum up, with the progress of science and technology, automation technology is also in continuous development and progress. As an important technical means in electronic information engineering design, the application of automation technology in electronic information engineering design provides more powerful conditions for the development of electronic information engineering design, so that various technologies between the two can be fully integrated, so as to promote electronic information technology is developing towards a more intelligent, more comprehensive and more efficient direction.

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On the Application of Bionic Elements in Jewelry Design

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Abstract: Bionic elements have always been the key content in jewelry design. With the further development of modern jewelry industry, some changes have taken place in the traditional design concept, and the use of bionic elements is more extensive. This paper briefly introduces the importance of bionic elements in jewelry design, and explores the application of mode elements in jewelry design, hoping to make jewelry design more smoothly. **Keywords:** Bionic elements; Jewelry; Design; Application

1. INTRODUCTION

Jewelry is a more common decoration in modern times, which can add beauty to people. The unique cultural attributes and artistic structure of jewelry are the key factors to attract people to buy. However, from the analysis of the reality of jewelry, it is found that the materials and shapes used in jewelry are roughly the same, without creativity. Even if the materials used are better, they cannot be recognized by people. Therefore, it is necessary to innovate jewelry design to make jewelry meet the diversified needs of people [1-4].

2. THE IMPORTANCE OF BIONIC ELEMENTS IN JEWELRY DESIGN

Jewelry with bionic elements is inspired by natural observation and carried out under the inspiration of inspiration. The original jewelry materials also came from nature. After that, with the continuous development of jewelry industry, more and more new design materials appeared. Therefore, designers should correct their own attitude, observe nature calmly, understand the magic of nature, and imitate the design according to the biological structure of nature. In nature, different animals and plants have different functions and shapes. Therefore, with the help of bionic elements to design jewelry, can effectively reduce the probability of similar phenomenon of modeling jewelry caused by the development of modern technology. From this point of view, bionic elements can make jewelry design more diversified. In addition, the application of bionic elements can enrich the raw materials used in jewelry, obtain more inspiration in nature, and make jewelry more artistic. Therefore, bionic elements must be used in jewelry design.

3. THE APPLICATION OF BIONIC ELEMENTS IN ACADEMIC PUBLISHING HOUSE

JEWELRY DESIGN

3.1 Application Of Bionic Elements

Bionic elements are some contents or elements obtained from nature as inspiration, including animals, plants and concepts related to nature. All life activities of human beings at the beginning need the support of nature. Therefore, understanding nature has become the key content of using bionic elements, that is to design jewelry with the help of biology itself. Among them, the application of animals and plants in jewelry is relatively common. In the traditional concept, most of the jewelry designed are relatively simple, and a certain figure is composed of dots, lines and surfaces. For the application of bionic elements, the design can show the five senses and body structure of animals and the shape of plants. For example, Swarovski's swan jewelry is the expression of Swan shape, making the design more personalized. For example, in the seaside Trinket shops, people will use the images of starfish, shells, conch and dolphins to design. These designs match with the clothes people wear on holiday, which can highlight the personality of the wearer and make them relax psychologically. From the perspective of jewelry design, bionic elements design, more attention to the concept of harmony, hoping to make the wearer feel relaxed and happy, and have a deeper understanding of the charm of nature. With the help of mechanical polishing, jewelry production does not take into account the uniqueness and beauty of natural design, the design of jewelry is almost the same, very rigid, no aura, resulting in the design is difficult to welcome people. The application of bionic elements in jewelry design can make the design more flexible and express the vitality, which can be loved by more people.

3.2 Application of Life Concept

Nature is vibrant, life itself is a miracle, has super creativity, can show a certain value. In the art industry, there are countless works showing vitality, and the appreciation of these works is relatively strong. In jewelry design, the application of life concept is one of the important ways to show bionic elements. It shows super vitality in jewelry and can enhance the artistry of jewelry. For example, when designing jewelry, wood is used as the raw material. Although wood itself is relatively hard, it is not rigid, which can show a calm and calm life concept. Applying it to jewelry can make

jewelry more generous and simpler, give people a calm and calm texture, and meet the consumption concept of a small number of consumers, which has been received by many consumers. For example, amber is formed by resin deposition for a long time, and natural amber itself is an expression of time. If amber is applied to decorations, jewelry can show a sense of historical massiness and make jewelry more attractive [3]. For example, the use of jadeite and coral, the construction of safflower, green grass and other common natural elements can make people feel the vigorous and vigorous life. Using these life concepts in jewelry design can make jewelry have more profound connotation and express the designer's design concept.

3.3 Application Of Biological Culture

By analyzing the things existing in nature, we can find that most of the creatures in nature are closely related to people's historical development. From the initial totem culture of people to the concept of harmonious development between man and nature, it is the development of biological culture. The application of biological culture to jewelry design can make the artistic characteristics of jewelry more distinctive, and make jewelry have a certain specific meaning, which is more common in jewelry design. For example, in China, Caicai cat is a symbol of wealth, representing wealth and peace. It is widely used in jewelry design. For example, in Thailand, people understand the elephant as auspicious, and the use of elephant in Thai jewelry is more common. These special images can not only make the ornaments more appreciative, but also carry people's good expectations. Biological culture is also more common in the West. For example,

in the west, people often say that Christmas old man will bring elk to give gifts, so milu deer has become the symbol of Christmas to some extent. In the jewelry related to Christmas, more common. This is the typical application of biological culture and the expression of bionic elements in jewelry design [4].

4.CONCLUSION

According to the above analysis, with the help of bionic elements to carry out jewelry design, can make the design more novel, show a unique culture and art, but in the process of the application of bionic elements, jewelry designers should form a correct understanding of bionic elements, make clear that bionic elements are the expression of life, and learn more about nature Related knowledge, master more biological culture. Only in this way can the application of bionic elements be more reasonable and the level of jewelry design can be improved.

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Research on The Innovation Path of Enterprise Management Mode in The Era of Big Data

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Abstract: With the development and progress of society, China's social industrial structure is also constantly changing. The emergence of information technology has optimized the traditional industrial structure. The old enterprise management mode and concept in the past cannot be applied to the current advanced productivity and production technology. The innovation of management mode is the decisive factor for the operation and development of enterprises in the new period. The application of big data in the operation and management of enterprises has changed the decision-making subject and mode of enterprises, strengthened the ability of data detection to reduce the operation cost of enterprises, and innovated the channels for industry to obtain information. This paper studies the innovation path of enterprise management mode in the era of big data, aiming at improving the survival and development ability of enterprises.

Keywords: Big data era; Enterprise management mode; Innovation path

1. INTRODUCTION

The arrival of big data era is both an opportunity and a challenge for the traditional enterprise management mode. Opportunities mean that the traditional enterprise management mode will be optimized and upgraded with the support of big data technology. The challenge also means that the old management model cannot make enterprises in a favorable position in the new era of competition. In the era of big data, the most important resource is the ability to collect and organize information. Mining useful information from users' consumption and data will increase the competitiveness of enterprises in the market. At the same time, it can also feedback the deficiency of its own mode from the user data. By improving their own industrial model to adapt to the development of the current era.

2. CHARACTERISTICS AND CONCEPTS OF BIG DATA

2.1 Concept Of Big Data

The advent of the era of big data has upgraded the industrial structure of society. Compared with the past, the use and dependence of information in the whole society are paid more attention to. The essence of big data is the aggregation of complex data. Its basic operation mode is the collection and processing of

information. Of course, the way big data technology collects and processes information is different from general data processing technology. The data collected and sorted out by big data technology can become valuable information in the hands of professionals. The analysis and collation of collected data can greatly improve the decision-making ability of managers. The role of big data for enterprise management, decision-making and operation determines its practical value, and this value will continue to be deepened and innovated. This influence on enterprise management has also become a symbol of the era of big data [1].

2.2 Characteristics Of Big Data

2.2.1 Huge Amount Of Data

As the name implies, big data itself is a collection of huge information. The information that constitutes big data is different from conventional data information. The main reason is that the amount of information has reached the level of ZB, and this information can continuously generate new information, and make the whole big data technology exist in a dynamic way [2].

2.2.2 Diversity

The variety and structure of big data determine its diversity characteristics. Due to the variety and structure of big data, and the increase of unstructured data, it is difficult for professionals to master and process big data information.

High speed liquidity. Big data itself has high-speed liquidity, plus the speed of big data generation. This makes the liquidity of big data in the process of transmission extremely fast. Of course, a lot of information has lost its practical value in the analysis stage.

2.2.3 Value

Big data is a combination of complex information, which is usually of high application value. Of course, in a huge data collection, the amount of useful information is very limited, and professionals often have to screen out this information from the huge data network, which undoubtedly increases the difficulty of staff work [3].

3. TRANSFORMATION OF ENTERPRISE MANAGEMENT THINKING MODE IN THE ERA OF BIG DATA

3.1 Sample Is Equal To Population

Before the emergence and application of big data technology, enterprises generally use the method of

sample sampling to select representative data information for analysis in operation management and decision-making, which is equal to the overall data with characteristics by analyzing the internal principle of data. This method is feasible in theory. It is through this method that the leadership of an enterprise decides the development direction of the enterprise. The sampling method is feasible, but without strong data support, it is easy to make wrong decisions. The arrival of the era of big data makes the sample closer to the whole, and it has a huge data source as support. Only in this way can enterprise management decisions become more scientific and reasonable [4].

3.2 It Has Data Hybridity

Big data has a complex structure. There are not only structural patterns, but also unstructured patterns. Structured information model has certain rules, and professionals can make the internal information more accurate according to a certain structural order. This kind of structure pattern is more common in the enterprise management in the past small data era. The nonstructural model accounts for a large proportion of big data, and its existence will not only affect the accuracy of data, but also increase the workload of staff. However, the accuracy of information will also make enterprise management decision-making to an extreme. The emergence of unstructured increases the fault-tolerant rate of enterprise decision-making. If we study and explore the rules of unstructured mode, we can find the great potential value of information. Linking this information can make the decision of enterprise management more forward-looking and advanced.

4. INNOVATION OF ENTERPRISE MANAGEMENT MODE IN THE ERA OF BIG DATA

4.1 Data Collection and Establishment of Data Platform

The purpose of establishing a data platform is to sort out and analyze the huge information better. Enterprises can predict and detect the data information by establishing the big data platform, so as to grasp the direction of enterprise development. At present, after the establishment of a big data platform, most of the information related to management work of the enterprise should be realized with the help of the data platform. Data platform has become the core of enterprise management. Compared with the traditional enterprise management before the problem, the modern enterprise which has established the data platform can detect and predict the operation of the enterprise by relying on the data information in the management, which greatly improves the scientific of the decision-making.

4.2 Definition Of Innovation Problem And Scheme Decision

In the era of big data, enterprise management has also greatly improved in terms of innovation and decision-making. From the perspective of innovation, innovation problems can be realized based on huge data. Big data itself hides "sensory function". Enterprises define problems through big data analysis, and then judge some innovation behavior by data. The decision-making of reform plan for a certain problem can also be realized by big data. The enterprise will input the scheme to the big data platform for comparative analysis, and then combine the relevant data information to evaluate the decision, and then put forward effective reference suggestions for the implementation of the decision.

4.3 Dynamic Data And Innovation Scheme Implementation

In essence, the innovation scheme is the generation of some new data, and the relevant information has not been included in the database of the data platform before. After people put forward the innovative scheme, the information will be collected into the data platform, and then the data platform will analyze the new information. Enterprises adjust the whole innovation project through the feedback of data platform. During the implementation of innovation projects, enterprises can also monitor the operation data of innovation data in real time through the data platform. Once the data problems occur, the enterprises can solve them in the first time. Such operation mode is an important part of enterprise management mode.

5. CONCLUSION

In general, the enterprise management mode in the era of big data has made a qualitative leap and change. The operation and development of enterprises are inseparable from the support of big data technology. With the support of big data technology, enterprises become more scientific and reasonable in decision-making.

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Design and Application of College English Teaching Model Based on Smart Class

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Abstract: The wide application of information technology in the field of education has opened up a new perspective for college English teaching. Intelligent classroom teaching is the product of the integration of information technology and classroom teaching. College English teaching based on intelligent classroom can use information technology to optimize the teaching design and meet the personalized learning needs of learners. Therefore, the construction of a smart classroom teaching model of college English plays an important role in promoting the reform of college English.

Keywords: Information technology; Intelligent classroom; College English; Teaching model

1. INTRODUCTION

English teaching can be divided into three types: teaching with English as the mother tongue, teaching with English as a second language and teaching with English as a foreign language. College English teaching in China belongs to “teaching with English as a foreign language”. Since the reform and opening up, college English has become one of the compulsory courses in most colleges and universities, and it is also one of the courses with the widest audience in China’s colleges and universities. Along with the development of society, students’ English learning resources and methods become increasingly diverse, however, it is still constrained to the traditional teaching mode of college English course, as a leader of the classroom, teachers only focus on the single language knowledge teaching, teaching methods and means are very boring, students can only passively accept knowledge, lacking active learning enthusiasm and motivation, therefore, the teaching effect is not very satisfactory [1-4]. With the advancement of the era of “Internet +”, driven by emerging technologies such as the big data, cloud computing and artificial intelligence, wisdom education has become the inevitable trend of education development. Based on network data platform and technology, the wisdom classroom treats students as the center, and scientifically integrate students within the classroom and outside the classroom time through the reasonable classroom design. In this way, smart classroom effectively stimulates the students’ learning initiative, therefore, exploring the wisdom of the college English classroom teaching mode has become the new trend of the reform of college English teaching.

2. CONCEPT OF SMART CLASSROOM

The concept of “wisdom” is difficult to define. In Chinese, “wisdom” can be used to refer to a person’s “intelligence”, agility and resourcefulness, or it can be interpreted as “the ability to discriminate, judge, and invent”. With the rapid development of science and technology, “wisdom” can also refer to the informatization and intelligentization of technology. It is because of different understanding about the concept of “wisdom”, there is no unified explanation and definition for “intelligent education” and “smart classroom”. Liu Bangqi (2015) argue that the concept of “smart classroom” can have two kinds of explanation, from educational perspective, wisdom is to cultivate students’ comprehensive quality, causing the students to grow smartly; from the perspective of information technology, intelligent classroom refers to the process of using technological means to promote the informatization and intelligentization of classroom teaching, construct intelligent teaching environment and promote students’ intelligent development. Tang Yewei et al. (2014) defined smart classroom as a new type of classroom that integrates information technology into classroom teaching so as to create an informationized, intelligent and personalized learning environment, thus to promote students’ intellectual cultivation. To sum up, although there is no unified definition of “smart classroom”, scholars tend to define the concept from the perspective of information technology. Therefore, the construction of smart classroom teaching mode needs to be supported by means of information technology.

3. REALIZATION CONDITIONS OF SMART CLASSROOM

Condition to realize the intelligent classroom refers to a variety of internal and external conditions which affect intelligent teaching mode construction and the achievement of the teaching goal, including students, teachers, teaching methods, teaching means, teaching environment, teaching resources, etc., the combination of these factors effectively contribute to the realization of smart teaching mode, changing the boring situation of traditional college English teaching mode.

3.1 Smart Teaching Methods

The implementation of intelligent teaching means cannot be separated from the support of various intelligent technologies, that is, artificial intelligence, cloud computing, big data and other information technology means. On the basis of information technology, classroom teaching form and means

become varied, the classroom interaction between teachers and students also become more frequent and effective, the huge amounts of precious data generated in the process of classroom teaching can be effectively recorded and analyzed through technical means for evaluating teaching effects and predicting the future development direction... The application of these information technology means enriches the content of college English classroom teaching, increases the vividness and interest of college English classroom teaching, and infuses the traditional college English classroom with new vitality.

3.2 Smart Teaching Environment

Intelligent learning environment includes offline learning environment and online learning environment. Offline learning environment refers to the physical environment of classroom teaching, namely the intelligent classroom. The online virtual learning environment is a platform for intelligent learning.

The traditional classroom is composed of teachers, students, platform, blackboard and other elements. The teacher is the dominant leader in the classroom, who teaches knowledge based on textbooks using blackboard and chalk as tools. The interaction between teachers and students all depends on the inspiration and mobilization of the teacher. In this classroom teaching mode, there is an obvious hierarchical relationship between teachers and students. Students often keep silent due to their subordinate status and passively accept the knowledge conveyed by teachers, which, to a large extent, inhibits the students' creative thinking and hinders the effective interaction between teachers and students.

The physical learning environment that smart classroom relies on is smart classroom. Smart classroom is the physical manifestation of typical smart learning environment, the high-end form of multimedia and network classroom, and a new type of classroom built based on information technologies such as internet of things, cloud computing and artificial intelligence. A complete smart classroom is composed of infrastructure, ubiquitous network, technology platform, mobile terminal equipment and so on. The infrastructure is the indoor learning system, attendance system, lighting system, air conditioning system, etc. Ubiquitous network can be connected through unlimited network or mobile data connection access; technology platform refers to the technology of data collection, analysis and storage on the platform based on information technologies such as internet of things and cloud computing; mobile devices include laptops, tablets and smartphones.

3.3 Intelligent Learning Resources

With the development and maturity of information technology, students' English learning time is no longer confined to the classroom, and learning resources are gradually taking digital resources as the main form. Learning resources refer to the information

materials and media auxiliary means required by students in the learning process. They are the platform and foundation for the interaction between the teacher and students. Specifically, they can be divided into intelligent learning software and intelligent learning platform.

Intelligent teaching software refers to the smart learning app, the exploration and development of smart learning app allows students learn English knowledge with smart phones, tablets, laptops and other portable mobile devices anytime and anywhere. According to the different content of college English learning, English learning apps contain app about English vocabulary, such as the "baicizhan", "shanbay word"; English reading apps, such as "shanbay reading", "mint reading", etc. Some apps focus on oral English practice, such as "fluent English speaking", "quepeiyin", etc. In addition, there are apps for phonetics and situational communication practice.

With the advent of the "Internet +" era, some intelligent teaching platforms with mature design are constantly emerging. These platforms often exist in the form of "apps", integrating functions such as signing-in, releasing learning tasks, interacting between teachers and students, assigning homework, and evaluating teaching effects, for example, "Chaoxing Learning Access", "Unipus" and "Rain Classroom". With the increasingly improved functions, these online virtual learning platforms effectively extend the classroom learning time and enrich the interaction between teachers and students outside the classroom, which can serve as an effective supplement to classroom teaching.

3.4 Intelligent Teaching Objectives

Teaching objective is the ultimate goal of teaching reform and teaching optimization, it is the basis for teachers to choose the teaching methods and organize teaching, and it is also the important guidance for students to establish their own learning methods, and the important basis for students to conduct teaching evaluation. The first step of smart classroom teaching is to preset the teaching goal, a new round of curriculum reform put forward the teaching goal of "holy trinity", so when designing the teaching activities, teachers need to take into account of "knowledge and skills", "process and method" and "emotional attitude and values". The teacher can make use of the rich smart resources and set the specific teaching goal of college English course, the specific teaching goal of each unit and even the expected teaching goal of each class hour. Intelligent teaching objectives play an overall guiding role in the teaching objectives of each link of teaching activities, so as to promote the development of intelligent teaching and cultivate intelligent talents with noble moral character, correct values and strong knowledge ability.

4. CONSTRUCTION OF COLLEGE ENGLISH TEACHING MODEL BASED ON SMART CLASSROOM

College English Smart Classes use information technology to mobilize students' interest in English learning, inspire students' minds, promote students' creative learning, and finally realize students' intellectual growth. Therefore, when designing the college English smart classroom teaching model, the difficulty of the teaching task and the students' basic English conditions should be considered, and smart teaching activities should be designed in three links: before class, during class and after class.

4.1 Preview Stage Before Class

The pre-class preview stage refers to the process in which teachers prepare the pre-class materials, release pre-class resources and guide students' pre-class preview process according to specific teaching tasks and objectives, combined with the results of students' learning situation analysis. This process specifically includes the following steps:

Preparation of materials: Preparation of preview materials is an important part of pre-class preview. According to specific teaching contents, teachers can make micro-lessons, record short videos or select MOOC resources from the internet platform as auxiliary materials for students' pre-class preview. Microlecture refers to the structured digital resource that uses information technology to present fragmented learning content, process and extended materials according to students' cognitive rules. The core content of college English "micro class" is short video related to the classroom teaching theme, it also includes teaching design, courseware, teaching reflection, practice test, student feedback, teacher comments and other auxiliary teaching resources related to the text content of this unit. Through the mobile devices at hand, students can watch the content of the "micro lecture" recorded by the teacher repeatedly at any time, get familiar with the theme of the text, relevant vocabulary, sentence pattern and other grammatical knowledge, and also share their learning comprehension and experience in the exchange and interaction area. Micro-course is not only different from the traditional teaching resources such as courseware, teaching design and teaching reflection, but is also a new teaching resource inherited and developed on the basis of it. Determining the teaching objective is the first step in the micro class recording, scientific and reasonable teaching aim is the key and foundation to guide the whole class. The teacher should combine the text content with the graphic images and make short videos with sound and picture synchronization, thus explain key points and difficulties thoroughly in the text in less than 10 minutes in a lively and interesting way.

MOOC is short for "massive Open Online courses", this online open course is a product of

"Internet+education", it is a new type of open online course resources. MOOC platform push the online courses of a lot of famous universities, outstanding teaching team and teachers, it has the characteristics of openness and sociality. At present, the influential MOOC platforms in China include "Chinese university MOOC", "MOOC network", "Net-ease open courses" and "school online" launched by Tsinghua university. Teachers can carefully select online courses suitable for their own teaching contents and push them to students. Students can watch these excellent course resources anytime and anywhere through mobile devices to learn knowledge related to the classroom contents to be learned.

Release preview tasks: teachers can build class on information technology platform, invite students to join in the classes, and release the preview material on the platform. Teachers can push the material to the students in the form of a task, and set a good task requirement, deadlines, etc., the students' mobile devices will receive task manager through windows, thus understand the assigned tasks.

Independent preview before class: After receiving the preview task pushed by the teacher, students can watch the preview resources selected by the teacher through the mobile terminal device according to their own time situation, and complete the exercises related to preview content within the time requirements set by the teacher. Teachers can check the data such as whether the students have completed the preview task, the completion time of the task, and the performance of the exercises on the platform, so as to timely understand the preview status of the students, identify the problems and difficulties encountered by the students in the preview process, and provide guidance for classroom teaching.

4.2 Interactive Stage In Class

Compared with the traditional classroom, smart classroom changes the teaching mode with teachers as the main body, therefore the key of teaching is three-dimensional classroom interaction between teachers and students. Teachers can divide the students into several groups according to the total number of the class, at the beginning, teachers can transmit teaching resources, teaching tools, teaching tasks by the network. Some smart classrooms are equipped with semicircle desks and chairs to facilitate discussion and interaction.

Class teaching begin from discussing and solving the problems encountered in pre-class preview. Teachers give guidance and explanation to the problems that cannot be solved after discussion. Then, team members can present classroom reports according to the preview tasks assigned before class. Finally, teachers can design classroom activities according to preview feedback data, preview exercise test results, and group presentation in class. For example, teachers can make cards of the students' error-prone words and

explain the key error-prone words in the form of word spelling contest or word solitaire. The teacher can also decompose the longer sentences in the text, and make the structure of the decomposed sentences into pictures for display and explanation. It is also possible to break down the frame structure of the text and match the central idea of each section with the text content. In the smart classroom teaching environment, the teacher can also use mobile internet to push in-class test questions, students accept questions through smart phones and complete the submission, the platform will automatically correct the test according to the teachers' input in advance and generate an objective completion statistics and accuracy rate. The teacher can project the statistical results onto a large screen and interpret the wrong topic, the teacher can also feedback comments on each group of academic achievements, enhance mutual learning between the group and develop the students' ability of independent thinking and creative thinking.

3.3 Feedback After Class

The feedback stage includes two steps: teaching summary reflection and teaching effect evaluation. The homework in traditional classes needs to be corrected by teachers after class, so the homework can only be reported and analyzed in the next class. The efficiency is low and the overall situation of homework completion cannot be counted in time. In the smart classroom, teachers can learn the completion of the assignment for each student by smart platform background data connection, teachers can give text or voice comments through the platform to assignments, at the same time they can also guide students to knowledge internalization the sublimation. This personalized coaching way is more intuitive and efficient, and more beneficial to guide the students to the knowledge expansion of sublimation.

The evaluation of teaching results after-class can reflect the teaching effect of smart classroom in time and play an important guiding role in classroom teaching. The specific evaluation methods can be divided into summative evaluation and expansive evaluation. Summative evaluation refers to the way in which teachers give comprehensive evaluation to students by evaluating their performance in all aspects of the classroom. Teachers can set proportional weights for each link before, during and after class, and integrate students' performance through specific evaluation of the preparation stage before class, group discussion in class, classroom test and homework

completion after class. The way of expansive evaluation is more open and diversified. For example, teachers can encourage students to discuss related cultural topics based on their understanding of texts, and share them with all teachers and students by recording micro-videos. Students can also be guided to refine and sublimate their views on the text, make comments or organize debates.

After-class feedback is not only the summary feedback of smart classroom teaching, but also a good test of smart classroom teaching results. It plays an important theoretical guiding role in the design of smart classroom teaching activities.

4. CONCLUSION

Smart classroom not only inspires college English teaching, but also challenges college teachers and students. Based on the smart classroom teaching mode, college English course applies information technology in college English teaching practice, breaks through the time and space limitation of college English teaching, and constructs a new teaching mode under the information environment. Teachers create situations to interact with students, inspire students' interest in English learning, and guide students to learn and grow intelligently.

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Discussion on Cost Control in Construction Project Management

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Abstract: At present, with the economic development of our country, the scale of construction industry is also expanding. For construction enterprises, high quality and high efficiency are important measures to promote their development. Therefore, enterprises need to do a good job in the whole stage of cost control to ensure the engineering quality and improve the economic benefits of enterprises. In this paper, the construction cost control measures are proposed.

Keywords: Construction Engineering; Project management; Problems; Corresponding countermeasures

1. INTRODUCTION

1.1 Lack of Cost Management Awareness

Due to the late development of China's construction industry, some enterprises carry out management work in an extensive way, and in order to make enterprises obtain more economic benefits, there are still some deficiencies in management. This situation not only affects the overall quality of the project, but also is not conducive to the sustainable development of enterprises. At the same time, the enterprise's awareness of cost control is relatively weak, most of the staff lack the corresponding cost management awareness, and fail to do a good job in the whole stage of cost accounting and control work, thus wasting a lot of human, financial and material resources.

1.2 Imperfect Cost Control Management System

According to the actual situation of cost management in the past, construction enterprises will distinguish each link in the cost management work, and will adopt different management means, lacking of corresponding unity. Due to the large scale of construction project and long construction period, it will be affected by various subjective and objective factors. If there is no corresponding cost management system, the actual cost expenditure will be seriously inconsistent with the expected [1-4]. At the same time, because the scope of responsibility is not clear, it also brings opportunities to those who have the intention, which seriously affects the effective development of cost management. Secondly, if there is a problem, there will be mutual prevarication, unable to effectively investigate the relevant responsible person.

2. THE CORRESPONDING COUNTERMEASURES OF COST CONTROL IN CONSTRUCTION PROJECT MANAGEMENT

2.1 Establish a Sound Cost Control and Responsibility

ACADEMIC PUBLISHING HOUSE

Mechanism

As we all know, a perfect cost management system can not only play an effective role in standardizing, but also reduce the cost expenditure of enterprises and improve the economic benefits of enterprises. Therefore, relevant departments should pay more attention to this, formulate a reasonable cost control system according to the actual situation and development needs of the project, and implement the system to all departments and individuals, so as to form a complete management system Management system. At the same time, because cost management is not aimed at a certain link, it involves the whole stage of project construction, so it is necessary to carry out cost control work from multiple links to ensure the effectiveness of cost control work [2]. Secondly, due to the differences in the content of each link of construction engineering, the management department should clarify the corresponding scope of responsibility. In case of problems, it can timely track down the responsibility of the relevant person in charge, so as to fundamentally improve the quality of cost control. Performance appraisal measures can be adopted here, and the results of the assessment can be linked with their personal salary. This way can play an effective incentive role. When the staff carry out cost control work, they can put their work attitude in a correct way and operate in strict accordance with the corresponding system, so as to improve the overall quality of cost management.

2.2 Improve Managers' Awareness Of Cost Control

As the participants and implementers of cost control, the cost control awareness of managers determines the quality and efficiency of cost control work. Therefore, relevant departments need to take appropriate measures to improve the cost control awareness of managers, so that they can carry out work with a fair and just attitude. At the same time, the loss of construction engineering is directly proportional to the economic benefits. The management personnel should have strong working experience and fully understand the work content related to project cost, so as to ensure the smooth development of cost control work [3]. Secondly, managers need to strictly review the cost budget report and actual expenditure, eliminate unreasonable expenditure and ensure that every cent can be used. In order to ensure the accuracy and reliability of the cost control work, we can formulate the corresponding standard of cost expenditure and

require all departments to implement it strictly.

2.3 Do a Good Job Of Cost Control In The Construction Process

In addition to the cost control of early decision-making, bidding and completion stage, the cost control in the construction process is also very important. Therefore, cost management personnel should pay more attention to this link and take appropriate management measures to do a good job in cost control at this stage. As an important part of construction and construction, engineering raw materials occupy a large proportion in the total cost of the project. Management personnel should control the cost of materials. When purchasing materials, they should select raw materials with consistent performance in strict accordance with the requirements of the project, and select products with relatively low prices on the premise of ensuring their quality, so as to reduce the cost of materials. After the materials enter the site, they should be sampled and tested to ensure that the quality of the materials is in line with the expectation, and the corresponding storage and protection operations should be done to avoid the qualitative change of material performance caused by environmental factors and increase unnecessary costs to the enterprise. At the same time, it is necessary to strictly register the receipt of materials and the consumption of various links, so as to ensure the best use of raw materials. Due to the large scale of the construction project, it is impossible to complete the construction work only by relying on human resources. Large scale machinery and equipment are needed to assist in the construction. These equipment will cost a lot of money in leasing and purchasing. Therefore, the management personnel should do a good job in reasonable distribution, avoid idle phenomenon, and regularly maintain these machinery and equipment, so that they can be in the It can give full play to the maximum utility in construction operation [4]. Secondly, it is necessary to strictly control the construction technology, and require the staff to strictly plan the standard and reasonable construction. When the illegal operation is found, it should be severely punished to prevent the occurrence of such behavior, so as to avoid the increase of construction cost due to quality problems. Finally, the construction progress is also closely related to the cost management. The management personnel should formulate a reasonable construction schedule according to the actual situation of the project to ensure that the project can be completed on schedule within the original plan, so as to effectively reduce the total cost in the construction process.

2.4 Strengthen Safety Supervision And Standardize Construction Behavior

If the safety supervision system of construction enterprises is not perfect, it will lead to various safety accidents, which will not only threaten the personal safety of construction personnel, but also cause unnecessary cost expenditure to the enterprise, and affect the economic benefits of the enterprise. Therefore, the relevant management departments need to strengthen the publicity of safety construction, and hang banners on the construction site to play a warning role at all times and reduce the incidence of safety accidents. According to the previous experience, the non-standard operation of the construction process is the main factor leading to safety accidents. Here, the management personnel should go to the site from time to time to carry out the inspection, and strictly review and guide all links to ensure that the construction can be carried out in an orderly manner. This method can effectively reduce all kinds of accidents caused by the operation errors of the staff, and improve the quality of the project at the same time It can improve the economic benefit of the enterprise, so as to effectively promote the sustainable development of the enterprise.

3. CONCLUSION

To sum up, if the construction enterprises want to improve their competitiveness and occupy a place in the fierce competition market, they should not only ensure the overall quality of the project, but also affect the cost control work and improve the economic benefits of enterprises. However, due to the imperfect cost management system and the lack of awareness of staff cost management in some enterprises, the quality level of cost management has been unable to be effectively improved. In view of this problem, corresponding measures should be taken to solve this problem, so as to promote the stable development of enterprises.

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On the Application of Chinese National Music Elements in Film Music

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Abstract: Under the new situation, film music mainly relies on the time and space context of its image, so as to achieve the state of "audio-visual integration", meet the basic needs of the overall narrative of the film, and present the keynote of national history and humanity to everyone's vision. "The sound beyond the picture" and "the picture beyond the sound" belong to the revelation of national memory and the return of the speaking power of local culture. National music has distinct national characteristics, which can reflect the original ecology and diversified national characteristics, and let the film enter the best state, so as to provide a new visual experience for the audience. Therefore, this paper first puts forward the problems to be explored, and then, combined with the current situation, analyzes the application of Chinese national music elements in film music, so as to meet the national service construction of film music creation.

Keywords: Nationality; Film; Musical elements

1. RAISING THE QUESTION

With the further extension of science and technology, many Chinese films have won international film awards, and more and more cultural output has begun to gradually go abroad and go international. At this time, more audiences can appreciate the cultural inheritance of colorful folk music. For example: won the Golden Palm Award "Farewell My Concubine" and won the Golden Bear Award "Red Sorghum" [1]. Through the comparison of these contents, it can be seen that both the plot part of the film and the acting part of the actors present an impeccable scene. In particular, the selection of music and cultural heritage is realized. It not only realizes the promotion and development of national music, but also improves the quality of films. On the one hand, it embodies strong inclusiveness; on the other hand, it can also learn from others' strong points on the basis of effective compatibility, so as to meet the effective integration of Chinese and western music culture and achieve the main situation of modernization. Let more Chinese films extend in the direction of internationalization [2]. Therefore, how will Chinese folk music elements be applied in film music? It has become the focus of research under the current situation.

2. THE APPLICATION OF CHINESE NATIONAL MUSIC ELEMENTS IN FILM MUSIC

2.1 Application Of National Instrumental Music In Film And Television Music

To a certain extent, China's national musical instruments are rich and diverse, showing a state of blooming flowers. For example: Flute, erhu, pipa, guqin, panxiao, drum and so on belong to the category of national instrumental music, and each kind of music will play different music items. For example, suona is a kind of high sounding and exciting music, but erhu embodies different rendering colors. For example, the theme music of Crouching Tiger, hidden dragon has left a deep impression on people on the basis of original music. In this film, other musical instruments are added to the cello, which not only has a rich style, but also has a variety of national musical instruments such as bamboo flute, erhu, Matouqin and Xiao [3]. In the sword stealing scene, the percussion instruments were used scientifically and reasonably. At first, Xiao was used to create the whole atmosphere. Then, gongs, drums and other national instruments were used to set off the tense atmosphere of sword fighting between the two sides. Among them, there is a part of "to the South" music clips, not only reflects the strong penetration, but also reflects the Chinese characteristics of bamboo flute. In addition, the bamboo flute with a very rich border flavor of drum music, can be more profound to the heroine's kind of independent adventure in the river and lake to everyone's vision. Next, the melody of the Yunnan folk song "flowing in a small river" changed the scene of yujiaolong's "Kung Fu" bloodbath into a scene of "weakening violence". That is to say, after the artistic treatment of "music melody against violence", the purpose of the film is not to take the bloodbath as the goal, but more inclined to the high-level examination of human culture. Yu Jiaolong's introverted emotional color is presented to the audience's vision, and also reflects the mood that heaven is not afraid of the earth. Using subjective music, it achieves the aesthetic pursuit of localization music. In the process of music production, crouching tiger, Hidden Dragon emphasizes the main tone of the eastern classical instruments, and increases the auxiliary role of Western electronic instruments, Cello and other orchestral instruments. It not only embodies the oriental characteristics, but also attracts the attention of the audience, and is affected by the artistic charm. In the production of Crouching Tiger, hidden dragon, the main rare value is to combine the Western cultural essence with the eastern classical music, and further break through the problem of music creation. And

according to the development sequence of the story, it integrates the national characteristics such as "Aobao meeting" and "sister looking for brother's tears", which truly reflects the real life of the film's protagonist and depicts the real character of the characters [4]. In the direction of diversified application of national musical instruments, the performance of films has been improved.

2.2 Application Of Folk Songs In Film Music

From the perspective of folk songs, it carries thousands of years of history and can present people's real scenes on the basis of localization. For example, when shooting, in order to better present the real state of the ethnic minorities, on the basis of homesickness, the national music was effectively adapted. After that, the pictures on the grassland of ethnic minorities would be presented to everyone's field of vision. And it can also give the ethnic minorities unique charm from the perspective of daily life reproduction. Another example: "people on the grassland" is based on the folk song "Aobao meet", which improves the application value, truly reflects the love life of grassland, and achieves the aesthetic feeling of art appreciation.

2.3 Application Of Drama In Film And Television Music

From the perspective of reality, traditional opera is an important part of Chinese music culture. The common types are Beijing opera, Pingju, Bangzi, Qinqiang, etc. In these categories, a lot of music comes from real historical events. If we combine these music and movies with historical background, we can essentially improve the overall quality of films. For example, Chen Kaige's *Farewell My Concubine*, which is shot by Chen Kaige, is in a real state, using the main way of Peking opera opera, so that the audience can feel different historical expressions. Under the profound influence of feelings, it extends to the direction of traditional national music. Let the audience feel the emotional experience of the protagonist, and can give the real national traditional color, increase the audience's impression. Another example: in the

shooting process of the Hong Kong film "Lu Ding Ji", the Peking Opera Opera "deep night" was used. After the program came out, it added more sense of humor to the martial arts atmosphere [5]. Audiences of different levels can meet the corresponding audio-visual needs on the basis of this humor.

3. CONCLUSION

With the progress of society, film is the main channel of cultural output. We want to improve the viewing experience of the film, deepen the theme of the film, and touch the emotion and soul of the audience. Not only need the actor's advanced acting skills, wonderful film plot, but also need to have the sense of substitution of film music. The creation of film music needs to combine the development plot, historical background, scene environment and other contents reasonably into the elements of national music. In order to highlight the characteristics of Chinese national music, Chinese films with a new attitude to the world, glow with more beautiful colors.

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Research on Risk Prevention and Control of Sudden Death in Large Events: Taking Nanchang International Marathon as An Example

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Abstract: In recent years, sudden death in major events, especially marathon, has been reported frequently in newspapers, which has aroused widespread concern from all walks of life. How to prepare for a rainy day in the era of national sports, establish a complete safety early warning system and first aid system, and ensure the safety and health of athletes in the process of participating in such events is a practical problem to be solved urgently in front of the organizers of major sports events. Taking Nanchang International Marathon as an example, this paper analyzes the effective establishment of prevention and control mechanism of sudden death risk in large-scale events, so as to provide useful reference for theoretical research and practical exploration of risk control and prevention of large-scale events.

Keywords: Major events; Sudden death; Risk prevention and control

1. INTRODUCTION

With the advent of the era of national sports, people's demand for sports is also increasing [1]. Especially in recent years, the "marathon craze" swept across the country. Many cities such as Kunming, Zhangjiakou, Zhuhai and so on regularly hold marathon events. More and more long-distance runners have participated in this sport. However, at the same time, there are not a few sudden deaths in marathon events in recent years. Therefore, event organizers and local sports authorities should focus on it Improve the safety risk prevention and control system of large-scale events, and strive to ensure the personal life safety of athletes in large-scale events such as marathon.

2. ANALYSIS OF THE CURRENT SITUATION OF SUDDEN DEATH CASES IN MAJOR SPORTS EVENTS

In recent years, with the continuous improvement of people's living standards and the continuous improvement of people's health, more and more people begin to actively participate in various sports events, such as basketball competition, marathon and so on. Especially in recent years, marathon is favored by people. Many cities also hold marathon regularly, such as Kunming half marathon, Zhuhai marathon and

Hong Kong Marathon In the summer of 2003, in the semi-final of the federation cup between Cameroon and Colombia, Cameroonian midfielder player Vivian fohn suffered a heart attack. On January 7, 2001, gavrel, a player of Argentina's "college students" basketball team, participated in the match He died suddenly in a match of the National League; on August 6, 2018, a young man in Fujian died suddenly in a basketball match, only 26 years old. The occurrence of such events all reminds us that sudden death is not a case in a large-scale event. Taking the marathon as an example, according to statistics, in recent three years, 14 people died of sudden death in the domestic marathon race. The causes of sudden death were sudden arrest of the running center and ineffective rescue. On November 12, 2017, in the Nanchang International Marathon, an athlete suddenly fell to the ground when he crossed about 10 meters from the finishing line of the half marathon. He was rescued by Tang Zhiming, deputy chief physician of the Department of Orthopaedics, Jiangxi Provincial People's Hospital and other doctors nearby. The occurrence of such incidents, in fact, reflects that there are still many loopholes in the safety prevention and control of large-scale events in China. Efforts should be made to improve the safety prevention and control system, strengthen the allocation of medical resources, and strengthen volunteer training, so as to effectively reduce the incidence of sudden death cases in large-scale events.

3. RESEARCH ON RISK PREVENTION AND CONTROL OF SUDDEN DEATH IN LARGE-SCALE EVENTS -- TAKING NANCHANG INTERNATIONAL MARATHON AS AN EXAMPLE

The establishment of risk prevention and control of sudden death in large-scale events is a systematic work. We should focus on the prevention mechanism, coordination mechanism and daily mechanism to build a complete safety prevention and control system of sudden death in large-scale events.

3.1 Establishment Of Safety Prevention Mechanism

According to the data statistics of foreign media, the probability of sudden death of athletes in marathon and

other large-scale events is about 0.8 per 100000 people [2]. In fact, the marathon was held to commemorate the sudden death of a young soldier. At present, all kinds of domestic large-scale sports events, especially the "running horse" sports such as Nanchang International Marathon, are showing blowout. In order to reduce the sudden death of athletes in the competition as much as possible, the event organizers should focus on improving the existing event safety prevention mechanism. Taking Nanchang International Marathon as an example, we should focus on the "physical examination" of athletes Off ". In order to ensure the safety of athletes, many sports events require applicants to provide physical examination certificates in advance, but in this process, the requirements for physical examination contents are relatively simple, many only require pulse, blood pressure and electrocardiogram, or some event organizers completely turn the important part of physical examination into mere formality, and some athletes even make false physical examination reports. The event organizers should pay more attention to the physical examination, actively establish cooperative relationship with relevant professional hospitals, provide professional heart examination service for athletes before the competition, conduct unified physical examination, and resolutely refuse to return those who are proved to be unsuitable to participate in the competition, so as to effectively eliminate hidden dangers. At the same time, we should actively recruit volunteers with medical professional background, further improve the medical service mechanism on the scene of the event, establish a strong organization and clear responsibilities of the on-site medical service system, reasonably set up rescue stations, and focus on increasing the setting density in the second half. At the same time, it is necessary to formulate on-site safety treatment plan, fully consider the occurrence of crisis events such as sudden death of athletes, make full preparations in terms of ideology, technology and equipment, and carry out active drills in peacetime, so as to be prepared.

3.2 Establish Security Coordination Mechanism

Once sudden death and other crisis events occur in large-scale events, especially marathon events, the consequences are often serious and the impact is long-lasting. At the same time, the handling of such events often involves multiple subjects, including the event organizers, sponsors, sports authorities, athletes' families, hospitals and other subjects' mutual assistance and cooperation [3]. Taking Nanchang International Marathon as an example, in order to effectively prevent the occurrence probability of sudden death, the local sports authorities must take the lead and actively build a safety coordination mechanism including all parties. It is necessary to

clarify the division of responsibilities and strengthen information exchange, so as to ensure that athletes are given emergency treatment in the first time when they have discomfort, so as to reduce the probability of death.

3.3 Establish Daily Safety Mechanism

In the process of establishing safety prevention and control mechanism for large-scale events, it is very important to establish prevention and coordination mechanism, but more importantly, it is more important to constantly improve the daily mechanism of event safety based on peacetime [4]. Taking Nanchang International Marathon and other events as an example, on the one hand, we should strengthen publicity and education in daily life, publicize daily training and correct the motivation of competition, and improve the medical security of the last ten kilometer sprint stage. On the other hand, we should strive to provide comprehensive professional medical security. In addition to providing professional emergency personnel and volunteers, we should also pay attention to the common needs. Efforts should be made to popularize technologies such as cardiac first aid and cardiac resuscitation, so that more people can master them and strive to create favorable conditions for successful rescue.

4. CONCLUSION

In a word, at present, all kinds of large-scale events, especially marathon events, are booming and becoming more and more commercialized today. The sports authorities and event organizers should strive to improve their safety awareness, earnestly start from improving the safety prevention mechanism, coordination mechanism and daily mechanism, and strive to build a perfect risk prevention and control mechanism for sudden death of events, so as to ensure the life safety of the participants.

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Design and Application of Coal Mine Networking Platform Based on Big Data Architecture

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Abstract: Coal mining industry has brought good benefits for domestic economic development and is an important part in the development process of China. Aiming at the safety accidents in the process of coal mine production, this paper constructs a supervision platform for the coal mine industry based on big data. Through scientific design and application, the effective integration of coal mine system data, the improvement of supervision efficiency, the use of big data to provide safe and reliable guarantee for coal mine production, and improve social benefits.

Keywords: Big Data; Coal Mine Networking Platform; Design Applications

1. INTRODUCTION

With the continuous development of coal mine automation technology, the number of coal mine safety accidents has decreased significantly, but the death toll is still high. Because of the high coal production in China, it is also the cause of high coal mine safety accidents. In order to strengthen safety supervision and reduce accidents, a perfect management platform is built through big data to form a database, which is convenient for accident investigation and evidence collection, and a standardized coal production system is formed.

2. DESIGN OF COAL MINE NETWORKING PLATFORM BASED ON BIG DATA FRAMEWORK

Based on the problem of coal mine safety accidents, this paper constructs the coal mine networking platform under the big data mode, and designs a platform with the structure of collection, transmission and storage through the hierarchical design concept, so as to effectively realize the comprehensive control of coal mine production safety. The monitoring system, positioning system and so on carry out data exchange for the whole region, and realize the data fusion and sharing among different regional platforms. The collection layer of coal mine supervision network platform is mainly responsible for collecting data, collecting real-time data and historical information from various coal mine systems through data exchange standards. After that, through the communication technology of the transmission layer, the data is transferred to the analysis layer in real time. After the analysis of the analysis layer, the data is properly kept

and uploaded to the database of the coal mine platform. The temporary cache and priority insertion strategy are adopted in the storage process, which can effectively ensure the security of the data in case of failure in the storage process. At the same time, according to the priority insertion strategy, the files with higher data level will be stored first. Based on data collection and storage, the coal mine database is established to provide services for big data mining information. The last display layer uses B / S architecture. Supervisors and government departments can use various functions of the system in the networking platform through Internet technology, so as to realize the real-time supervision of coal mine production.

3. PLATFORM DATA EXCHANGE STANDARDS

There are many coal mines in China, and there are many coal mining enterprises. There are differences in technology and data used by different enterprises in production. Therefore, the effective integration of coal mine data from different regions in the coal mine networking platform is the design difficulty at this stage. In view of this situation, in the design of the networking platform, the standard of data exchange is standardized, and the relevant content of data exchange between different enterprises is clarified to ensure the effectiveness of data fusion.

3.1 Basic Agreement of Data File

The data of coal mine networking platform is exchanged between different systems through text file, and ANSI is used for file coding. The file name is edited and generated according to the rules. The generation time is determined according to the date and time at that time. The suffix name is TXT, and the generated file name is XXXX.TXT.

3.2 Data Exchange Standard Specification

The data exchange specification specifies the related protocols of data exchange between networking platforms. At the same time of exchanging coal mine data, it is necessary to upload relevant information of coal mine operation, such as carbon monoxide, wind speed, personnel access information, etc. according to statistics, there are 23 items. Taking the safety monitoring system as an example, the exchange file needs seven exchange lists including switch action information, initialization data, warning and emergency treatment measures to meet the data exchange standard.

4.NETWORK TOPOLOGY OF NETWORKED PLATFORMS

According to the situation of coal mining enterprises in different regions, combined with the national safety supervision system, the coal mine networking platform is constructed. Through the local area network connection, the platform is responsible for docking with the local area network, collecting and transmitting data, and effectively transmitting the data to the security monitoring center through the dedicated Internet line. By dividing different cities according to the mode of city, district and county, the network is divided into different levels of nodes to undertake data transmission services at all levels. The network topology structure of the networking platform fully demonstrates the exchange ability. Through the establishment of a master server in the platform, the databases in various regions are connected, and the hierarchical server is used to exchange and connect with the main server to transmit data. The networking platform separates the internal facilities of coal mine enterprises through network technology, establishes buffer in the supervision center, realizes the demand of reconstructing virtual network, ensures the security of platform operation and reduces the management cost.

5.BIG DATA REGULATORY SERVICES

Big data technology has a more and more extensive development direction from its emergence to its application. With the support of big data, the development of coal mining platform is more perfect, and a number of national level data centers are established. Under the premise of perfect regulatory conditions, data platforms for regional supervision should be established in different regions to facilitate in-depth information mining and analysis of big data. The obtained coal mine information is stored in the coal mine database, and the visualization result display chart of the coal mine report forms and data is constructed.

5.1Data Pre-Processing

"Data preprocessing" is composed of networked data, and forms systematic monitoring steps through data extraction, cleaning, conversion and loading. Among them, data collection refers to the comprehensive acquisition of coal mine data uploaded by the server that can be received in the networking platform. However, due to the difference of data generated between different systems, the extraction method is different. There will be gas alarm in coal mine production, such data need to be extracted according to the daily upload method, while the underground operators need to extract according to the attendance sheet; the purpose of data cleaning is to exclude the non-conforming data, upload the data to the platform center to ensure the data integrity. According to the

relevant contents of the uploaded data, the year and date of the uploaded data are modified to eliminate the data generated during the adjustment period. Data transformation is to carry out mining through big data, so as to carry out in-depth processing of mining data. For example, the effectiveness of data generated by the positioning system is calculated, and the daily and weekly report data of gas data are calculated.

5.2 Multi-Dimensional Analysis and Utilization of Big Data

Through the above data processing, the data is transmitted to the data for safety supervision. The database establishes different topics according to different types of data, and analyzes them pertinently. Through the construction of visual icon to display the data results, it provides strong support and guarantee for the safety supervision of coal mine industry. The system establishes a multi-dimensional analysis mode for data, starting from the coal mine, equipment, time, personnel and other dimensions, deeply excavates and analyzes the information of equipment operation, underground operation, abnormal alarm, etc. This paper takes the abnormal alarm information as an example for analysis. The system will systematically analyze the data of coal mining enterprises in a certain area at a certain time in a certain year and month, compare the changes of coal mine production in this area in different time periods, and effectively predict the situation of alarm information in the next month. Combined with the safety management experience, the system shows that the alarm data floating rate is high area targeted supervision, do a good job in site inspection, reduce the occurrence of coal mine production safety accidents.

6.CONCLUSION

To sum up, build coal mine networking through big data, provide real-time online supervision services to the government, and meet the government's demand for real-time supervision of coal mine enterprise safety production. Through the construction of coal mine networking, help coal mine enterprises further improve the safety management work, obtain better economic benefits, obtain wide recognition from the society and employees, provide a solid foundation for the development of coal mine industry, and make contributions to coal mine safety supervision.

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Student-Led Evaluation of Oral English In Foreign Language Classroom

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Abstract: Evaluation plays an important role in education and teaching. This study is a student-led formative assessment of oral English in a foreign language classroom, which plays an important role in Teachers' teaching achievements and talent selection. Through the continuous promotion of innovation in education and teaching, and in the specific practice of teaching, gradually form the education evaluation. Based on this, this paper analyzes the students' oral English in the foreign language classroom in order to ensure that students' dominant position in the classroom is more reflected.

Keywords: Students; Subject Status; Foreign Language Classroom

1. INTRODUCTION

The evaluation of foreign language education system is mostly summative, which emphasizes the final learning achievement of students. For example: CET-4 and CET-6. Under the promotion of the new curriculum reform, colleges and universities pay more attention to the cultivation of students' practical application ability and gradually establish a formative evaluation system. Therefore, in the teaching of oral English in Colleges and universities, we should respect the dominant position of students and give full play to their multiple wisdom advantages.

1.1 Formative Evaluation

"Formative" refers to the evaluation of the whole process of the whole education project to ensure the further correction and improvement of the problems in the education process, mainly the evaluation of the students' learning process, aiming to stimulate the enthusiasm of students' learning and improve the overall teaching quality and effect. In foreign research, the definition of "formative" evaluation refers to the evaluation between teachers and students through a series of tests, and through teaching feedback, to improve the problems in each link of teaching, promote teachers' teaching reflection, and play an important auxiliary role in the whole process of teaching [1, 2]. The research on Formative Assessment in China is a form of classroom activities dominated by assessment, which is more inclined to be dominated by students. It reflects the problems in the process of learning and teaching through scoring and assessment tools, so that teachers can better adjust the teaching content. Through self-evaluation, students will constantly make up for their own shortcomings,

improve their learning attitude, and use formative evaluation to further standardize their learning behavior and strengthen their spirit of unity and cooperation. Generally speaking, it is the assessment of students' learning status. Students can better master their current learning basis, oral expression ability, and how to make adjustments and changes.

1.2 Student-led oral formative evaluation

In the process of formative evaluation of education, researchers should make the students' main position more prominent, emphasize the role of students and the role in the evaluation, and ensure the comprehensive application of students' self-evaluation, students' evaluation and teachers' and students' evaluation in the classroom teaching of oral English in Colleges and universities. In the college oral English class, the change of the evaluation mode, the student-oriented evaluation form is more prominent, through the student-oriented evaluation form, the classroom learning content is further deepened. Constantly improve the enthusiasm of students' learning, create a good classroom learning atmosphere, and build up formative evaluation, improve students' participation in the classroom, and "formative" evaluation has gradually become a source of motivation for students' learning. Some researchers say that colleges and universities should pay more attention to the form of student-oriented evaluation, further clarify their own shortcomings through student evaluation, and constantly reflect on learning. Teachers should guide students to master the principles and standards of formative evaluation. To ensure that students face up to the weaknesses in learning, adjust learning strategies in time, so as to improve learning effect, more clear learning progress, learning direction, and then make a detailed learning plan, to ensure "formative" evaluation and maximize students' interest in learning. At the same time, teachers should make timely encouragement and evaluation, mobilize the enthusiasm of students' participation in the classroom, and help students better improve their oral English level [2]. In the context of vocational education, teachers should adjust the proportion of teachers and students to ensure that students play a more dominant role and make progress in the evaluation process.

2. TEACHING EVALUATION UNDER THE THEORY OF MULTI-INTELLIGENCE

2.1 Teaching Evaluation

The researchers point out that college foreign language

teachers should fully respect students' dominant position in the classroom, and explore students' multiple intelligences from multiple perspectives. Through the "formative" evaluation, help students to better understand the inner activity state, better understand others' emotions and better regulate students' own behavior. In the process of oral English teaching, teachers should guide students to evaluate themselves and students. Through the learning process, this paper points out the existing problems in oral English, and takes effective measures to improve the students' cognitive ability and divergent thinking ability. Under the theory of multiple intelligences, more respect for each individual's different learning methods, student-oriented evaluation can directly reflect the learning level of students, facilitate teachers to better grasp the learning situation of students, and make timely teaching adjustments. In the evaluation of spoken English, we need to evaluate it from the aspects of voice tone, oral communication, grammar and vocabulary, so that students can understand its own shortcomings from all aspects and multiple perspectives. In addition, the correct guidance of teachers, put forward constructive suggestions, to ensure that the dominant position of students is more obvious, and promote the efficient construction of college oral English classroom.

At the same time, the main formative assessment of students must be based on a certain situation. To ensure that students' learning process becomes the core content of evaluation, and oral expression runs through the evaluation of students. Teachers should carefully observe the dynamic development of students, collect all aspects of students' information, help students to make a more scientific and reasonable oral practice plan, to ensure that the final improvement of students' oral English expression ability.

2.2 Evaluation implementation process

In the specific evaluation process, teachers should divide the students into two groups to carry out

situational dialogue. After the dialogue is completed, fill in the evaluation form in combination with the oral English evaluation standard in the classroom, conduct peer evaluation, feedback the evaluation in time and send it to the evaluated students to check the scores of teachers' evaluation and students' evaluation. Teachers should give objective evaluation to help students with oral English, improve their oral expression ability and promote the integrity of classroom evaluation. At the same time, teachers should give full consideration to the actual situation of the students, and make appropriate adjustments to the scores, focusing on encouragement, and constantly enhance the students' self-confidence in oral expression.

3.CONCLUSION

To sum up, the formative assessment led by students is a step-by-step process. In the evaluation and feedback, students should recognize their own shortcomings in time. Through correct guidance, teachers should constantly improve students' leading evaluation ability and better standardize students' oral pronunciation. Through the research and analysis of "formative" evaluation, students' leading evaluation form can improve their oral English level and improve the efficiency of classroom learning.

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The Application of PAD Teaching Mode in the Innovative Curriculum of Normal Talent Training

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Abstract: In the process of popularization of higher education, normal college optimizes the traditional majors and courses according to the needs of market development, and builds a professional talent training system. PAD teaching mode focuses on the understanding and absorption of content. Compared with the traditional curriculum teaching, it has a more significant guarantee in learning quality, and is worthy of large-scale application in the innovative curriculum of training model talents.

Keywords: PAD Teaching Model; Talent Training Innovation; Application

1. INTRODUCTION

PAD refers to the three-stage integration mode of presentation, assurance and discussion. The core idea of PAD is to separate teachers' classroom teaching and students' knowledge discussion process, and pay attention to students' knowledge absorption after class, which is also known as "split class". In this teaching mode, students can make clear the key points and difficulties, and realize comprehensive and profound understanding and teachers' answering questions in the classroom through self-absorption.

1.1 Promoting the efficiency of curriculum teaching

Compared with the traditional teaching model, PAD teaching mode can make effective improvement in teaching efficiency, especially to promote the development of students' ability will play a more obvious role. Because the PAD teaching model is divided into three different stages of teaching, internalization and discussion, students can go through different stages of content learning directly, and realize knowledge linkage and the gradual deepening of content. In the process of learning, it includes not only the summary and induction of book knowledge, but also the understanding and creation of key difficulties. For students, they can discuss and analyze the expertise within the subject, and let teachers continuously strengthen students' cognition through process evaluation to meet the learning needs of students at multiple stages [1].

1.2 Promoting the improvement of students' ability to learn independently

Under the PAD teaching model, students can put a lot of energy into the self-learning stage, which helps them improve their ability to innovate and study

interest. The reason is that the traditional teaching methods fail to pay attention to the students' individual differences and knowledge understanding, and do not take students as the main body of the teaching process. However, the role orientation of students and teachers in THE PAD teaching mode has changed, and teachers can become both the imparters of knowledge and the evaluators of students' ability, which promotes the change of students' learning style. For example, students can change existing learning processes directly through discussions with other students to further promote deep understanding of knowledge. After class, we can also analyze and discuss independently for certain problems, and no longer rely on the traditional "passive" Passive teaching model for ability training [2].

1.3 Promoting future reform s

The PAD teaching model can provide new development opportunities for future teaching reform. Especially for the training of normal talents, the future talent capacity demand is not limited to the level of knowledge, but also reflected in interpersonal communication, ability shaping, moral education and other aspects. Through the PAD teaching model, students' initiative is brought into play, and teachers adjust their teaching plans according to the different characteristics and abilities of students, which is also an important channel for the training of talents in the field of education, and can also absorb advanced theories and practical experience at home and abroad if necessary.

2. PAD-SUPPORTED TRAINING PROGRAM FOR TEACHER-INNOVATIVE TALENTS

2.1 Optimization of teaching content and systems

Focusing on the curriculum content of teacher-innovative talents, we can optimize the teaching content according to the curriculum architecture, and cultivate students' ability to acquire knowledge and the level of professional practice. For example, in the curriculum can be incorporated into some innovative courses, remove some old, outdated content. According to the situation of different students, configure a comprehensive service guarantee mode. Specifically, schools can optimize the allocation of curriculum resources, emphasize the innovation ability of curriculum, in the form of teaching organization is also towards the direction of learning

management. In this way, we can cultivate students' knowledge application ability, and the knowledge points and extracurricular knowledge points involved in the curriculum can form a linkage, refine and summarize some content, pay attention to the supplement and perfection of knowledge structure.

2.2 Teaching design adjustment

Combined with the characteristics of different classes, readjust the existing curriculum content, and the existing curriculum system framework is combed under the premise of highlighting teaching difficulties. For some students easy to understand the content, can be added to the classroom teaching, so that students to carry out the free discussion of these contents, and gradually improve the discussion of the various links of the class. For example, after discussing goal determination, teachers can group students, complement and strengthen knowledge within the group, share questions, achieve common promotion, and, if necessary, import content from new courses.

2.3 Innovative teaching evaluation model

The teaching evaluation mode needs to highlight the evaluation work of the educational object on the basis of the existing curriculum and subject, and construct the link between the student evaluation and the school evaluation. For example, from the point of view of ability evaluation, the talent requirements for the future teacher training majors are reflected in several aspects:

(1) Humanistic quality. Humanistic quality is mainly manifested in professional identity, caring attitude of students, tolerance of the heart, leading by example of character. Because the teacher's humanistic literacy will implicitly affect students, so in the course construction process, we need to pay attention to the cultivation of professional humanistic quality, pay attention to the cultivation of comprehensive ability.

(2) Language application capabilities. As a backup teacher in the future, these teacher skilled professionals should also have the ability to apply language, so as to better communicate and interact

with students;

(3) Innovation ability. The ability to innovate is manifested in the objective analysis of problems and the ability to apply knowledge theory.

In recent years, the degree of demand for talents in social development has changed significantly, and the professional teaching of teacher training colleges themselves is influenced not only by the school, but also by the social demand. This requires us to highlight the characteristics of the curriculum in terms of curriculum evaluation ^[2]and guarantee the quality of education.

3. CONCLUSION

The quality of classroom teaching is the key point of talent training. PAD teaching mode has obvious advantages and wide application prospects in the future education field. As educators, we should also recognize the importance of PAD teaching mode and apply it to the future education practice. At the same time, educators should pay more attention to the training of teachers' professional talents, and provide more excellent talents for the field of education in China.

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Research on the Countermeasures of Mixed Mode Teaching of Vocal Music Online in Higher Education

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Abstract: In the case of the sudden outbreak of the COVID-19, in order not to affect the progress of students' learning, all schools in China have launched online teaching. Based on this, this paper briefly introduces the significance of "mixed mode" teaching, and studies the countermeasures of online "mixed mode" teaching of vocal music in higher education, so as to help vocal music teaching in this special situation. **Keywords:** Vocal Music in Higher Education; Mixed Mode; Online Teaching

1. INTRODUCTION

Under the guidance of the new curriculum reform, various schools in China have been developing teaching resources, innovating teaching models, and gradually developing online and offline hybrid models for teaching, and achieved good results. At the critical moment of fighting the epidemic, colleges and universities deeply implement the guidelines of the Ministry of Education: using the network platform to "close classes without stopping learning". It is of great significance for vocal music teaching in higher education to study the online "mixed mode" teaching strategies.

First of all, different from the traditional single teaching mode, it has a richer form and diversified content, which can effectively enhance students' interest in learning, and drive students' independent learning through the tasks released by teachers. At the same time, multi angle and more intuitive experience strengthen the learning effect of students.

Secondly, it is a challenge for teachers, which needs to develop new teaching resources, collect teaching materials, and then further integrate the materials with the teaching content, design teaching programs, promote teachers' exploration of teaching methods and methods, and effectively improve the teachers' business level.

Finally, compared with the traditional teaching method, it has lower requirements on time and space, especially in the critical period of anti-epidemic, the advantages of "mixed mode" teaching are highlighted. In addition to the unified online teaching of teachers, students can also arrange their own learning according to their own actual situation, which provides great convenience for students [1].

2. COUNTERMEASURES FOR "MIXED MODE" ACADEMIC PUBLISHING HOUSE

TEACHING ON THE VOCAL LINE OF HIGHER EDUCATION

2.1 Guide students to pre-school previews

Because of the particularity of vocal music teaching, it relies on face-to-face teaching mode. Under the mode of online teaching, teachers' pre class guidance becomes extremely important. For the guidance of pre class preview, we can start from the following two aspects. First, guide students to preview the basic knowledge of vocal music. In vocal music teaching, vocal music knowledge is the cornerstone of teaching and the basic principle of vocal music training for students. Due to the limited online classroom time, in order to improve the classroom efficiency, vocal music teachers should guide students to preview the relevant knowledge and music theory before class. Teachers can use rich network resources to collect relevant and easy for students to understand vocal music skill demonstration videos, and can use micro class to summarize the key and difficult points, guide students to preview. The preview data video must be short and interesting. Second, create problem-based preview to assist students. Problem-based preview can guide students to learn independently. For example, before teaching "singing resonance training", teachers can ask questions at the end of a demonstration video. What kind of voice method and other simple questions are used by the people in the video to guide the students and cultivate their ability of active thinking and independent learning.

2.2 Online teaching quiz techniques

In the process of teaching on the vocal music online, according to the results of the students' pre-class preview, the question-and-answer session of the amiable teacher, the problem in the pre-study, and through the students' pre-study feedback, the course explanation is carried out in a targeted manner, and for the key difficulties in the students' learning, the teacher should have a number in mind, so as to achieve the goal of improving the efficiency of online teaching. Moreover, online teaching is different from face-to-face teaching, students are prone to lack of concentration, teachers in the course of teaching, to properly arrange the question link, here is the teacher to ask students questions, teachers to design a good question before class, difficulty and depth to step in. For example, in the teaching process of "singing

resonance training", the song's melody is first asked a simple question, and then the basic state of singing, breath, resonance and word-biting processing, step by step in-depth questioning, step by step to guide students to think. In the question and answer, teachers need to be as detailed as possible, students can answer accurately, teachers answer more carefully, students are also easier to understand. In addition to teachers to answer students' questions in a timely manner, respect students' questions, appropriate praise and guided evaluation.

2.3 Explain in a diverse way

In the process of vocal music teaching, we should adopt a wide variety of lectures, and fully apply network resources to assist in teaching. Teachers can focus on vocal works related knowledge explanation, playing video to the humanities of vocal works analysis, because of the valuable classroom time, so teachers should try to choose lively and interesting short video, can combine the teacher's relevant experience, deepen students' understanding of vocal works. For example, in the study of "the road to home", teachers can combine their own life experience to guide the thoughts and feelings in work, while attracting students' attention, they can also help students understand the feelings of songs. Music itself is one of the ways to express emotion. Therefore, in order to express a good vocal work, we must fully understand the emotion of the song.

2.4 Strengthen the acceptance of the examination and acceptance

For vocal music teaching, long-term online teaching will reduce students' enthusiasm for learning, and it is difficult to concentrate in the course of class, so after class assessment and acceptance become very important. There are many ways to evaluate and supervise students. For example, after class teachers in the assignment, try to assign vocal singing homework. Students can pack their homework in groups and give

it to teachers in the form of video through a unified channel, so that teachers can understand the learning effect of each student, and give different guidance suggestions and evaluation to different students, so as to achieve the goal of individualized teaching, one-to-one guidance, and improve the teaching effect. In addition, daily training is essential in the process of vocal music learning. In order to prevent students from neglecting training at home, teachers can set up learning groups to supervise students. Students are required to punch in the group by small video or audio after vocal practice every day. In the daily learning and training of vocal music, if students are confused, they can also consult teachers in time to provide a platform for the communication between teachers and students [2].

CONCLUSION

In the case of online teaching mode of vocal music in higher education, in order to ensure the learning effect of students, vocal music teachers need to adopt "mixed mode" to teach. In the process of online teaching, some difficulties cannot be avoided. At the same time, online teaching also has certain advantages. Teachers should try their best to play their advantages, and constantly develop and explore the "mixed mode" teaching to ensure the quality and effect of vocal music teaching.

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Main Electrical Connection Scheme of 10kV-High Voltage Substation in Textile Workshop

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Abstract: The 10kV high-voltage substation is very important for the power system in residential areas and the power system in factories. The design of the main electrical connection scheme of the 10kV high-voltage substation requires the calculation of the current through the power of the equipment to select the number of power transformers. In the selection process of the main wiring scheme of the substation, the flexibility, economy and safety of the main electrical connection scheme design need to be considered. Calculate the short-circuit current. Specifically, the research is conducted from three aspects: short circuit calculation, power transformer selection and main wiring design. The focus of the research is to design the main electrical wiring of a substation with two power transformers that does not take parallel operation.

Keywords: Electric Power substation; Power transformer; Short circuit calculation; Main electrical connection scheme.

1. INTRODUCTION

Regarding the design of the main electrical connection scheme of the 10kV substation, it is purely to discuss and explore the steps and methods of the design of the main wiring, which is very empty and abstract. Therefore, taking the production equipment of a textile workshop as an example, the electrical main of the 10kV substation Design the wiring. In industrial production, electrical energy is the main source of energy and power [1-4]. The massive use of electrified equipment in the industry has greatly improved production efficiency. Therefore, a reasonable and efficient main wiring design will greatly improve production efficiency and reduce the failure rate of electrical equipment. Reasonable main wiring design will greatly reduce energy consumption and improve energy utilization.

1.1 Selection of the number of power transformers

The principle of selecting the number of power transformers in the workshop substation. For the second- and third-class load users, because the priority is lower, only one power transformer in the substation needs to be installed, and the capacity of the power transformer needs to be determined according to the calculated load. For the workshops of most users above the secondary load, if there are two independent incoming lines, when the load is dispersed, two

substations can be set up with one power transformer; when the load is large and concentrated, one can also be built the substation has two power transformers. The capacity of each power transformer should be considered when one power transformer is faulty or overhauled, the other can be overloaded to meet the power demand of all-important loads [1].

According to the large load power of the workshop and the load dispersion caused by the large workshop, two power transformers are selected due to the factors of the on-site factory workshop and the requirements of the production process. At the same time, the two power transformers are operated in parallel, and a circulating current will be generated between the two power transformers, which is economical. Technically, the dual power transformer does not use parallel operation.

1.2 Power transformer capacity calculation

When installing two main power transformers, the capacity is determined as follows.

Since the operation mode is not parallel operation, according to the load distribution, each power transformer is responsible for the voltage reduction requirements of different sub-plants. The power transformers are named as power transformer No. 1 and power transformer No. 2. According to the nameplate of the workshop equipment and calculations, the calculated active power and calculated reactive power of various equipment on the low-voltage side are obtained.

Power transformer No. 1 is responsible for the decompression task of the spinning frame, radio frequency dryer, winder, air-conditioning room and the lighting of the plant area where the above equipment is located, that is, it is mainly responsible for stepping down the electrical energy of the spinning workshop and the winding workshop; the above equipment operation load The capacity is 1635kW, the calculated active power is 1171kW, the calculated reactive power is 886Kvar, the power transformer loss is 12kW active and 62Kvar reactive; so the calculated active power on the high-voltage side of the power transformer is 1183kW, after reactive power compensation, the calculated reactive power on the high-voltage side 447Kvar, according to the formula, the calculated apparent power of the high-voltage side is

$$S_{30} = \sqrt{P_{30}^2 + P_{30}^2} = 1265 \text{ KVA} \quad (1)$$

The No. 2 power transformer is responsible for the voltage reduction tasks of equipment other than the production equipment and other plant areas that the No. 1 power transformer is responsible for, that is, it is mainly responsible for stepping down the electric energy of the front spinning workshop and the combing workshop; the operating load capacity of the above equipment is 1322kW, and the calculated active power The power is 906kW, the calculated reactive power is 826Kvar, the power transformer loss is 10kW active and 48Kvar reactive; so the calculated active power on the high-voltage side of the power transformer is 915kW, after reactive power compensation, the calculated reactive power on the high-voltage side is 346Kvar, according to the formula The calculated apparent power on the high voltage side is

$$S_{30} = \sqrt{P_{30}^2 + Q_{30}^2} = 978 \text{ KVA} \quad (2)$$

According to the above calculation, the capacity of power transformer No. 1 is 1600 KVA; the capacity of power transformer No. 2 is 1250 KVA.

1.3 Power transformer type selection

The choice of power transformer should be a low-loss power transformer, so we should choose the S11 series power transformers with capacities of 1600 KVA and 1250KVA respectively, then the selected power transformer model is S11—1600KVA/10/0.4KV, and the other is S11—1250KVA /10/0.4KV. Due to the large number of single-phase loads, there are large harmonics in the system, and resonance needs to be eliminated, so the connection group adopts Dyn11.

2. DESIGN OF MAIN ELECTRICAL CONNECTION

2.1 High-voltage side main electrical connection

Taking the advantages and disadvantages of various wiring methods and the actual situation of the workshop into account, the factory has a large load and adopts a production method that does not stop production throughout the year. In theory, the double bus system is more suitable for the power operation of the workshop. However, the construction cost of the double bus system in factory production is much greater than that of the single bus system and the busless form. Also, the factory uses the double bus system for power supply, so the production workshop only needs to use the single bus system. In terms of reliability, there is not much difference between bridge wiring and single busbar system. However, because the workshop uses dual power transformers for power supply, in the case of a power transformer failure or maintenance, the removal and investment of the bridge-type power transformer is more complicated. Compared with the single busbar system, the operation is complicated in the case of maintenance and repair. Based on the actual situation, the high-voltage side adopts a single-bus connection. The main wiring design drawing of the high-voltage side is shown in Figure 1 and Figure 2.

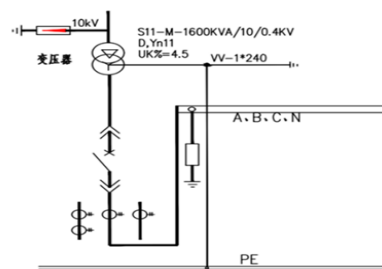


Figure 1. High-voltage side wiring of 1600KVA power transformer

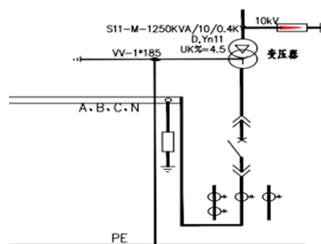


Figure 2. 1250KVA transformer high-voltage side wiring

2.2 Low-voltage side power line writing design

Due to the heavy load of the workshop, more production equipment, and spare equipment, when the production equipment is overhauled or malfunctions, the spare production equipment needs to be put into production, so the chain wiring is not suitable for the production needs of the workshop. At the same time, because of the large load in the workshop, the trunk wiring is not suitable for the production needs of the workshop. And because of the dual power transformer power supply, the power supply is relatively stable, the incoming busbar adopts double busbar connection, the power supply of the factory area is stable, and the high-voltage side of the workshop is connected by a single busbar system. In summary, the workshop uses radial wiring.

The wiring method of the low-voltage side of the workshop has been compared and explained in detail, and the wiring method suitable for the workshop has been selected. Because different electrical production equipment requires different power and functions in production, the production equipment of the same type and with similar functions is placed in a unified area to form a sub-workshop, and one sub-workshop is equipped with one or more distribution boxes. All workshops use the same wiring method. This article only takes the wiring design of the spinning workshop as an example and gives the design diagram, as shown in Figure 3.

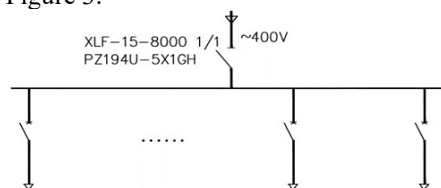


Figure 3. design diagram

3. CALCULATION OF SHORT-CIRCUIT CURRENT

3.1 Use the Ohm method to calculate the short-circuit current

Since the workshop has fewer loops, the method of calculating the short-circuit current is the Ohm method [1].

3.2 Short-circuit current calculation

3.2.1 Short circuit calculation circuit

Draw the circuit diagram of the short-circuit calculation of the two power transformers in the workshop, and determine the short-circuit calculation point according to the purpose of the short-circuit calculation (the short-circuit point selected makes the current through the electrical equipment reach the maximum value) as shown in Figure 4 and Figure 5.

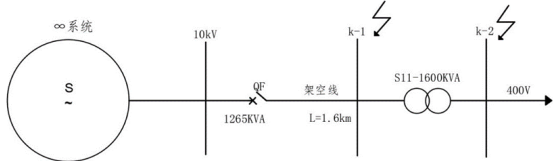


Figure 4. The short circuit calculation circuit of the first transformer in the workshop

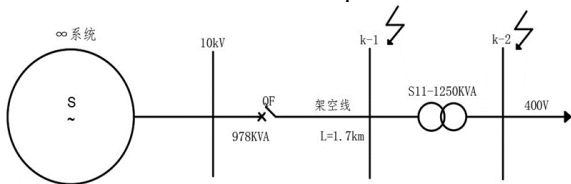


Figure 5. The short circuit calculation circuit of the second transformer in the workshop

3.2.2 Calculation process

(1) The short-circuit calculation process of the first power transformer

1) Three-phase short-circuit current and short-circuit capacity at point k-1 (=10kV)

Calculate the reactance and total reactance of the

electrical components in the short circuit

a. The reactance of the power system=1265MVA, so

$$X_1 = \frac{U_{c1}^2}{S_{oc}} = 0.08\Omega \quad (3)$$

b. The reactance of the overhead line: found in the technical manual = 0.35Ω/km, so

$$X_2 = X_0 L = 0.56\Omega \quad (4)$$

c. The equivalent circuit used to draw k-1 point short circuit is shown in Figure 6. Figure 6 also marks the serial number (numerator) and reactance value (denominator) of each electrical component, and then calculate the reactance value of the circuit, and finally calculate the circuit the total impedance value is

$$X_{\Sigma(k-1)} = X_1 + X_2 = 0.64\Omega \quad (5)$$

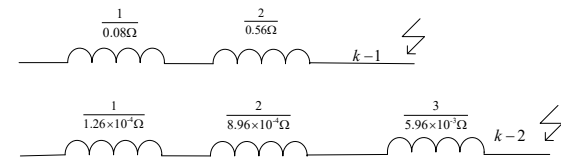


Figure 6. Short circuit equivalent circuit diagram of the first transformer (Ohm method)

Calculate three-phase short-circuit current and short-circuit capacity

a. The validity period of the periodic component of the three-phase short-circuit current is

$$I_{k-1}^{(3)} = \frac{U_{c1}}{\sqrt{3}X_{\Sigma(k-1)}} = 9.02 \text{ kA} \quad (6)$$

b. Three-phase short-circuit transient current and steady-state current effective value

$$I''^{(3)} = I_{\infty}^{(3)} = I_{k-1}^{(3)} = 9.02 \text{ kA} \quad (7)$$

c. Three-phase short-circuit impulse current and its effective value

$$i_{sh}^{(3)} = 2.55I''^{(3)} = 23 \text{ kA} \quad (8)$$

$$I_{sh}^{(3)} = 1.51I''^{(3)} = 13.62 \text{ kA} \quad (9)$$

d. The three-phase short-circuit capacity is

$$S_{k-1}^{(3)} = \sqrt{3}U_{c1}I_{k-1}^{(3)} = 156.23 \text{ MVA} \quad (10)$$

Table 1 Short-circuit calculation table of the first transformer in the workshop

Short circuit calculation point	Three-phase short circuit current/kA					Three-phase short circuit capacity/MVA
	$I_k^{(3)}$	$I''^{(3)}$	$I_{\infty}^{(3)}$	$i_{sh}^{(3)}$	$I_{sh}^{(3)}$	
k-1	9.02	9.02	9.02	23	13.62	156.23
k-2	34.41	34.41	34.41	63.31	37.51	23.84

2) Find the short-circuit current and short-circuit capacity at point k-2 (=0.4kV)

Calculate the reactance and total reactance of each electrical component in the short-circuit current

a. The reactance of the power system is

$$X_1' = \frac{U_{c2}^2}{S_{oc}} = 1.26 \times 10^{-4}\Omega \quad (3.9)$$

b. The reactance of the overhead line is

$$X_2' = X_0 L \left(\frac{U_{c2}}{U_{c1}}\right)^2 = 8.96 \times 10^{-4}\Omega \quad (3.10)$$

c. Reactance of power transformer: It is known from

the transformer technical manual that $U_k\% = 4.5$, so

$$X_3 \approx \frac{U_k\% U_{c2}^2}{100S_N} = 5.69 \times 10^{-6} \text{ k}\Omega = 5.69 \times 10^{-3}\Omega \quad (3.11)$$

d. Draw the equivalent circuit of the short-circuit at point k-2 as shown in Figure 9, and calculate the total reactance. The total reactance is as follows.

$$X_{\Sigma(k-2)} = X_1' + X_2' + X_3 = 6.712 \times 10^{-3}\Omega \quad (3.12)$$

② Calculate three-phase short-circuit current and short-circuit capacity

a. The effective value of the periodic component of the three-phase short-circuit current

$$I_{k-2}^{(3)} = \frac{U_{c2}}{\sqrt{3}X_{\Sigma(k-2)}} = 34.41 \text{ kA} \quad (3.13)$$

b. Three-phase short-circuit transient current and steady-state current effective value

$$I''^{(3)} = I_{\infty}^{(3)} = I_{k-2}^{(3)} = 34.41 \text{ kA} \quad (3.14)$$

c. Three-phase short-circuit current impulse current and its effective value

$$i_{sh}^{(3)} = 1.84I''^{(3)} = 63.31 \text{ kA} \quad (3.15)$$

$$I_{sh}^{(3)} = 1.09I''^{(3)} = 37.51 \text{ kA} \quad (3.16)$$

d. The three-phase short-circuit capacity is

$$S_{k-2}^{(3)} = \sqrt{3}U_{c2}I_{k-2}^{(3)} = 23.84 \text{ MVA} \quad (3.17)$$

In the calculation of power supply engineering design, often only short-circuit calculation tables are listed, as shown in Table 1.

(2) The second transformer short-circuit calculation process

The calculation process of the second transformer is the same as the calculation process of the first one. It is omitted here, and only the short-circuit equivalent circuit diagram is shown in Figure 7, and the short-circuit calculation table is shown in Table 2.

Table 2 Short-circuit calculation table of the first transformer in the workshop

Short circuit calculation point	Three-phase short circuit current/kA					Three-phase short circuit capacity/MVA
	$I_k^{(3)}$	$I''^{(3)}$	$I_{\infty}^{(3)}$	$i_{sh}^{(3)}$	$I_{sh}^{(3)}$	
k-1	8.25	8.25	8.25	21.03	12.64	142.89
k-2	27.96	27.96	27.96	51.45	30.47	19.37

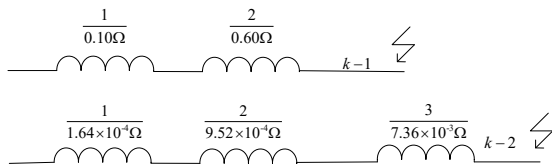


Figure 7 Short-circuit equivalent circuit diagram of the second transformer (Ohm method)

4. CONCLUSION

This paper designs and analyzes the main electrical wiring of the substation based on the equipment data of a textile workshop and the actual situation of the workshop. Single-bus wiring is used on the high-voltage side, and radial wiring is used on the low-voltage side. In terms of transformer selection, first determine the number of transformers, calculate the active power and calculate the reactive power according to the load capacity of each equipment group, and finally calculate the apparent power to select the transformer power and model. Finally, use

the Ohm method to calculate the short-circuit current. The dual transformers selected in this article do not use parallel operation for other similar constructions. The research results of this article have certain reference value in actual engineering calculations and applications.

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Study on The Performance of High Content RAP Compound

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Abstract: In order to realize the practical application of high content recycled asphalt pavement (RAP) material, the mixing ratio design of high content recycled asphalt mixture in RAP plant was carried out by Marshall design method, and the high-temperature stability, water stability and low-temperature crack resistance performance tests were carried out on the recycled asphalt mixture with 40%, 50% and 60% content. The results show that the variability of RAP materials can be reduced by proper grading of RAP materials. The performance of RAP material can be effectively regenerated by adding 8% regeneration agent. The pavement performance of the three kinds of high content recycled asphalt mixtures all meet the technical requirements of the specifications, and the performance is the best when the RAP content is 40%.
Keywords: Road Engineering; Reclaim Asphalt Pavement; High Content; Hot Mix Asphalt

kilometers. The rapid development of highway construction has caused huge pressure of resources and environment. Every year, China's main road construction project alone produces recycled asphalt pavement materials of 160 million tons. However, the recycling utilization rate of waste road materials in China is less than 30%, far lower than that of more than 90% in developed countries [1-2]. It is of great significance to environmental protection and sustainable development to make comprehensive use of waste materials, improve the level of resource reuse and recycling, and promote the development of transportation resource recycling industry. In this paper, by classifying RAP materials and controlling the variability of regenerated materials, the mixture ratio of three types of AC-20 plant mixed heat with 40%, 50% and 60% additives in raw asphalt mixture was designed, and the pavement performance of the regenerated mixtures with different RAP contents was compared and analyzed.

1. INTRODUCTION

China's highway construction has been developing rapidly in the past three decades. By the end of 2019, China's total highway length has exceeded 4.8 million kilometers, with the total length of expressways ranking first in the world, reaching more than 150, 000 kilometers.

1.1 Aggregate and filler

The new aggregate and filler were taken from the mixing station and are limestone ore. The technical indexes are shown in the Table 1.

Table 1. New aggregate and packing density test results

Density	10-20mm	5-10mm	3-5mm	0-3mm	Mineral powder
Apparent relative density	2.674	2.669	2.652	2.641	2.670
Relative density of gross volume	2.617	2.595	2.584	2.576	—

1.2 RAP materials

By screening RAP materials, it was found that the thinning phenomenon of RAP materials was serious [3]. In order to reduce the variation of RAP materials, RAP was divided into coarse materials(>4.75mm) and fine materials(<4.75mm).The screening results are

shown in Table 2. At the same time, the larger particle masses that have not been broken are removed, so as to reasonably design the mixing ratio of high-content RAP regenerated mixture and control the quality of regenerated mixture.

Table 2 Percentage passing through each screen hole of RAP two grades

Sieve size, mm	26.5	19	16	13.2	9.5	4.75	2.36	1.18	0.6	0.3	0.15	0.075
RAP(>4.75mm), %	100	100	96.2	87.8	73.4	27.5	14.6	10.9	8.5	5.7	4.7	3.7
RAP(<4.75mm), %	100	100	100	100	100	100	46.7	32.9	24.0	15.3	12.8	10.1

1.3 New asphalt

The A-grade 70# asphalt produced by Jiyuan was used

in this test, and its technical indicators are shown in Table 3.

Table 3 Test results of asphalt properties

Index	Penetration, 0.1mm	10°C Ductility, cm	Softening point, °C
Test results	74.6	>100	48.2

1.4 Regenerant

The performance test of the asphalt extracted and

recovered from RAP material showed that the penetration degree was 16.4(0.1mm), the ductility at 10°C was 6.5cm, and the softening point was 42.2°C. Test results shows that the asphalt had been seriously aging. The regenerating agent should adopt light oil with more saturated and aromatic components,

which can supplement the proportion of the temperment components of the old asphalt and restore the service performance of the aged asphalt [4]. The test results were shown in Table 4, and the regenerated agent content was 8%, which met the requirements (Table 5).

Table 4 Results of regeneration test of aged asphalt

Index	Penetration, 0.1mm	10°C Ductility, cm	Softening point, °C
Test results	69.6	88.9	46.8

Table 5 Test results of regeneration performance of regenerant with different dosage

Regenerant dosage, %	Penetration, 0.1mm	10°C Ductility, °C	Softening point, cm
2	32.7	23.9	56.7
4	36.3	47.6	53.4
6	53.8	71.4	46.3
8	66.6	83.5	44.5
10	80.4	98.3	55.3

2.MIX DESIGN AND ROAD PERFORMANCE VERIFICATION

2.1 Mix design

According to the screening results of RAP material and aggregate, it is proposed that the RAP content is 40%, 50% and 60%. Through screening aggregate of each grade and constant adjustment of aggregate dosage of each grade, AC-20 synthetic grading meets the specification requirements [5], as shown in Figure 1, and the combination of recycled asphalt mixture as shown in Table 6.

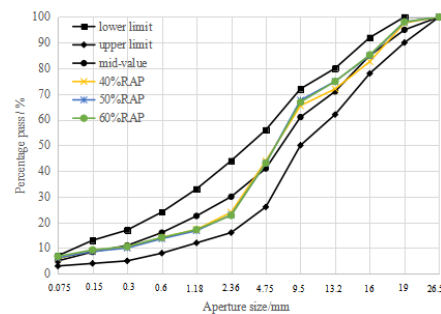


Figure 1 Gradation curve of different RAP

Table 6 Proportion of recycled asphalt mixture

RAP content, %	10-20	5-10	3-5	0-3	Mineral powder	RAP (>4.75mm)%	RAP (<4.75mm)%
30	25	5	12	15	3	35	5
40	21	5	10	11	3	42	8
50	20	0	9	7	4	50	10

2.2 Road performance verification

The above coordination ratio and the optimal bitumen dosage were used for road performance verification. The main tests included high-temperature rutting test,

low-temperature bending test and immersion Marshall test to characterize its high-temperature stability, low-temperature crack resistance and water stability [6-7]. The test results are shown in the Table 7.

Table 7 Aging performance test results with different dosage of regenerating agent

RAP content, %	dynamic stability, times/mm-1	Maximum bending strength, $\mu\epsilon$	Residual stability, %
40	2446	2532	93.4
50	2169	2253	92.2
60	2084	2034	85.6

It can be seen from the table that the high-temperature stability of the three high-content RAP regenerated mixtures meets the requirements and gradually decreases. The reason is that the higher the RAP content is, the higher the fine aggregate content will be, and the intercalation effect between large particles will be weakened, leading to poor high-temperature stability. Water stability and crack resistance at low temperature decrease with the increase of RAP content. Although both meet the requirements of the code, water damage occurs in the specimen with 60%RAP content during the test. In conclusion, when the RAP content is 40%, the recycled mixture has better

pavement performance.

3.CONCLUSION

Classifying and storing RAP materials can reduce the variability of RAP materials and ensure the quality of recycled mixture. The mixing amount of RAP material can be improved by adding regenerative agent with appropriate mixing amount. Different regenerative agents have different regeneration effects, so appropriate regenerative agent should be selected according to RAP performance. When the RAP content of raw asphalt mixture is 40%, the plant mix heat has good pavement performance. When the RAP content is increased, the pavement performance

becomes worse, which may not meet the specification requirements.

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The Application of Traditional Teaching Supplemented by Partial Case Teaching Method in The Physiology Teaching of Nursing Specialty

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Abstract: In this study 2017 nursing undergraduates in Inner Mongolia medical university as the research object, the experimental group used in physiology teaching with traditional teaching part of the case teaching method, and the control group with traditional teaching, the students pass the final exam results analysis theory knowledge and the improvement of learning, students through the questionnaire survey results to the traditional teaching of case teaching is supplemented by some degree of recognition. The results show that the traditional teaching supplemented by partial case teaching method can arouse students' interest in learning, improve their ability to find, analyze and solve problems, especially strengthen their ability to connect systematic knowledge before and after, which has obvious effect on improving students' academic performance and effectively improve the teaching effect of physiology.

Keywords: Physiology; Traditional Teaching; Case Teaching; Application

1. INTRODUCTION

It is an inevitable trend of education development to reform traditional teaching methods and improve teaching quality and efficiency [1]. With the birth of medical education information resource system, teaching information and teaching resources have been shared, enriched the teaching content, fundamentally changed the teaching methods and means of medical education, and had a positive impact on the teaching form. The teaching philosophy of "students as the main body and teachers as the leader" has gradually penetrated into the actual teaching. In order to improve the teaching efficiency and promote the construction and development of discipline teaching, different teaching methods have been gradually applied to the traditional teaching classroom, among which case discussion method is one [2].

Physiology is an important basic theoretical course in the medical curriculum, and a science to study the normal physiological functions of organisms and their

components [3]. It is the basis of pathophysiology, pharmacology and other subsequent basic courses, as well as the main course linking basic and clinical courses. But the physiology theory is strong, the knowledge covers a large amount, therefore in the study process the difficulty is larger, in addition to the nursing undergraduate course is four years, the class hour reduction and the contradiction between the teaching content is more prominent. All these force teachers to change the traditional teaching mode based on explanation, update the teaching idea, and develop the teaching practice suitable for the development of physiology teaching in nursing specialty.

Physiology is one of the core courses required for students majoring in medicine and related fields. Physiological content involves memory, understanding, analysis, multidisciplinary connection, nursing clinical application and other cognitive processes. In the specific teaching, physiology is usually studied separately for each organ and system in order, and the teacher explains separately according to the content of the textbook. This makes it difficult for students with different cognitive levels and learning habits to understand the complex interrelationships between organ systems in a short time, including how changes in the function of a single organ can result in changes in many other organs and systems. After completing the course of human physiology, students still have a poor understanding of the integration of different organs and systems.

It is reported that the case discussion method can stimulate positive learning attitude, promote the activation and refinement of previous learning, increase the learning motivation of college students, and achieve greater and greater success in medical education [3,4]. However, due to the constraints of class hours and large class teaching in nursing specialty, the most common method is still formal classroom theory teaching based on sequential organ system demonstration. This way of teaching inevitably leads to a negative attitude and lack of sufficient interest in the content. In the teaching of nursing

undergraduate in 2017, we tried to solve this problem through case discussion in some chapters. It explored the effect of the traditional teaching supplemented by part of the case teaching method in the physiology teaching of nursing specialty.

2. RESEARCH OBJECTS AND METHODS

2.1 Research Objects

146 students from classes 1-4 of nursing undergraduate course of 2017 of our school are experimental group (traditional teaching supplemented by partial case teaching method), and 151 students from classes 5-8 are control group (traditional teaching method). There is no difference between the two groups in the scores of the national unified examination for the admission of ordinary institutions of higher learning, and the students are randomly divided into different classes after admission. The third edition of Medical Physiology (edited by Sun Qingwei, People's Medical Publishing House, etc.) was used in all. The teaching contents included 10 chapters of "Introduction" and "Theory" of physiology (except the nervous system and sensory organs). The teachers were all over 10 years of teaching experience, and the teaching experience was comparable.

2.2 Teacher preparation stage

First teachers should according to the professional nursing in physiology teaching hours (48 hours) to establish a reasonable syllabus, in strict accordance with the chapters and sections for the period of teaching, combined with the nursing professional characteristics, in the section part set up some related to the professional, facilitating students to understand life cases and cases, as the experimental group's case, will accordingly be case layout content preparation before class, doing knowledge accumulation for case discussion, set up by the case is basically all the students are familiar with or side contact problem, clasp chapter main case knowledge, and the students' professional press close to, It can stimulate students' interest in learning and enthusiasm for exploration, so as to have a certain reserve of knowledge before class and effectively attend lectures with questions.

2.3 Research Methods

(1) Traditional teaching method. By using multimedia courseware and blackboard writing, teachers introduce new lessons by reviewing old lessons, elaborating content, summarizing and answering questions. (2)

Traditional teaching supplemented by part of case teaching method. (1) preparation before class, one class in advance, based on general outline decorate a case, the teacher is the emphases and difficulties of cases involving related knowledge related questions to all students, points out the key points in the students' learning, to make it clear learning objectives, form the first outline of the knowledge system in group access to relevant information autonomous learning, surrounding the "what - why - how to do" case analysis form the courseware. Class discussion. Each group will send representatives to report the learning results, and put forward the difficult problems in the discussion. The group members will make supplementary Suggestions, and other group members will put forward different opinions to refute or supplement. The process of case discussion is student-oriented, and the teacher timely points out and guides them into the essence of the problem. At the end of the discussion, the teacher gave evaluation and summary, improved the acquired knowledge, and interpreted the difficult points in detail.

2.4 Evaluation Criteria

(1) Final exam. A week after the end of the course, the experimental group and the control group will have a final exam. The content of the proposition is closely related to the requirements of the syllabus, which mainly examines the students' learning and mastery of basic concepts and theories and their ability to apply basic knowledge. The objective questions account for 60% and the subjective questions for 40%, and the papers are reviewed by several teachers according to the unified standard. Score above 90 excellent, 80-89 good, 70-79 medium, 60-69 pass, below 60 fail. The total scores of students were used as the evaluation criteria to compare the experimental group and the control group. (2) Questionnaire survey. The anonymous questionnaire survey is mainly aimed at the stimulation of learning interest, the cultivation of self-learning ability and the help of analyzing and solving problems. (3) Statistical methods. SPSS 20.0 was used for data comparison and analysis, and independent sample T test was used for difference test between groups. $P < 0.05$ was statistically significant.

3. RESULTS

3.1 Comparison of final exam scores

Table 1 Comparison of final scores between the two groups

	good		medium		Pass the		Don't pass the	Excellent and good rate (%)	The average scores
	number	%	number	%	number	%			
The experimental group									
146 people	93	63.70 *	40	27.40 *	7	4.79	6	4.11	63.70*
The control group									
151 people	75	49.67	57	37.75	10	6.02	9	5.96	49.67

Note * indicates that there is a statistical difference between the experimental group and the control group ($P < 0.05$)

As shown in Table 1, the results showed that the score of excellent and good in the experimental group was significantly higher than that in the control group, with

statistical difference ($P < 0.05$). The average score of the experimental group was significantly lower than that of the control group, and there was a statistical

difference between the two groups ($P < 0.05$). There was no statistical difference between the experimental group and the control group in the proportion of passing and failing grades ($p > 0.05$). The average score of the experimental group was significantly higher than that of the control group, with statistical

Table 2 Number of students affected by traditional teaching supplemented by partial case Teaching method to learning effect (%)

The problem	Significantly improved	general	No increase (or decrease)
Pay attention in class	116 (79.45)	13 (8.90)	17 (11.64)
Ability to identify, analyze and solve problems	102 (69.86)	21 (14.38)	23 (15.75)
Take the initiative to consult materials after class	112 (76.71)	22 (15.07)	12 (8.22)
Comprehensive and systematic understanding of knowledge	104 (71.23)	19 (13.01)	23 (15.75)
Classroom teaching time utilization	68 (46.58)	49 (33.56)	29 (19.86)
The learning efficiency	87 (59.59)	31 (21.23)	28 (19.18)

Table 2, the result shows that most of the students think that the traditional teaching with part of the case teaching method can arouse interest in learning, improve students' discovery, analysis and problem solving ability, improve the students' self-study ability and competition consciousness, to strengthen the system before and after the penetration ability of knowledge, at the same time within the team to prepare case to discuss the process of cultivating the cooperation and communication between the classmate. However, nearly half of the students think that traditional teaching supplemented by partial case teaching method cannot make efficient use of classroom teaching time, and the learning efficiency has not been significantly improved.

4. ANALYZE AND DISCUSS

In the increase of test scores, you can see the traditional teaching with part of the case teaching method significantly improves the rate of good students, there are significant difference with traditional teaching methods, may be the case teaching must require students to preview before class and data access of the link, most of the cases involving the content is not limited, to students of different sections to achieve mastery through a comprehensive study of knowledge, not in virtually promotes students knowledge of the previous chapter to review, greatly improving the academic performance. In addition, in the case analysis, teachers are also beneficiaries. Through the analysis and understanding of problems by students, they can find out the deficiencies in teaching and make timely improvement.

In terms of improving students' comprehensive ability, the traditional teaching supplemented by some case teaching methods also shows obvious advantages, which are recognized by students in terms of concentration in class, students' interest in learning, ability to analyze and solve problems, and the mastery of systematic knowledge. The reason may be that in the case analysis, students can feel that the knowledge they have learned can be applied to clinical practice,

difference ($P < 0.05$). It can be seen that the effect of traditional teaching supplemented by partial case teaching is obviously better than that of traditional teaching.

3.2 Students' feedback on traditional teaching supplemented by part of case teaching method

which makes students have a stronger sense of accomplishment and an increased desire for knowledge. At the same time, through case analysis, the relationship between the chapters before and after can be truly understood, and the problems that were not really understood before can be found out and solved in reference materials and case discussion, so as to truly achieve a comprehensive understanding of the knowledge before and after. The results show that the traditional teaching supplemented by partial case teaching method is helpful to improve the teaching quality, which is in line with the goal of cultivating high-level medical talents in the new era. Comparatively speaking, although the traditional teaching method can complete the teaching content systematically, it is difficult to cultivate the students' subjective initiative in learning.

In terms of the improvement of learning efficiency, the traditional teaching supplemented by some case teaching method has not been recognized by most students, and nearly half of the students think that the classroom teaching time utilization rate of such teaching is not high. This should be closely associated with long-term traditional education system, from university students to accept the teaching mode has been the traditional teaching, the teaching mode in teaching more effective use of time and less has advantage significantly deviate from the topic, it can make students intuitively grasp knowledge key, more easily in a short time, master knowledge [5]. In case teaching, students need to spend more time on self-study of relevant content. For medical students with heavy course burden, they will feel that it takes up too much time and increases their study burden.

5. CONCLUSION

In physiology teaching of nursing specialty in traditional teaching with part of the case teaching has its obvious advantages, is also a kind of beneficial attempt, but there are still some problems to be further perfect: in case writing should pay attention to pertinence, close to life, the design of case must be

closely combined with the basic principle, can arouse the students' interest in exploring; At the same time, teachers should also keep learning and updating knowledge to keep up with the development of the curriculum.

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The Research and Practice of Integrating the “Courses for Ideological and Political Education” with Public English Teaching

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Abstract: The essence of “Courses for Ideological and Political Education” is to spread advanced culture in a subtle way, so that students can continuously enhance their cultural confidence, integrate this confidence into their thought and action, and then cultivate cultural consciousness. Public English Teaching in Higher Vocational Colleges meets the need of “Courses for Ideological and Political Education”. This thesis mainly talks about the ways to integrate English teaching of higher vocational Colleges with “Courses for Ideological and Political Education” in post-epidemic Period.

Keywords: Courses for Ideological and Political Education; Post-epidemic Period; Public English Teaching

1. THE DEFINITION OF COURSES FOR IDEOLOGICAL AND POLITICAL EDUCATION AND THE NECESSITY

The General Secretary Xi Jinping stressed in the National Education Conference that, we must work more on strengthening the ideal and belief; instruct and guide students to foster lofty ideal of Communism and common ideal for Socialism with Chinese characteristics; to enhance students' confidence in the path, theory, system and culture of Socialism with Chinese characteristics; to shoulder the era task of National Rejuvenation.

In a broad sense, cultural confidence in the “Four Self-confidence”, is the sublimation of confidence in path, theory, and system, and is an important part of deepening students' understanding of path, theory and system. The essence of “Courses for Ideological and Political Education” is to spread advanced culture in a subtle way, so that students can continuously enhance their cultural confidence, integrate this confidence into their thought and action, and then cultivate cultural consciousness [1-2].

According to the paper from Ministry of Education, “Basic Requirements of English Course Teaching in Higher Vocational Education”, “Workplace English”, as a public basic course in higher vocational college, meets the need of “Courses for Ideological and Political Education”. One of its' quality targets is that, by studying Chinese and western cultural differences, expanding horizons, cultivating the spirit of patriotism, forming healthy outlook on life. In daily teaching, it is

an inevitable trend to introduce the elements of “Courses for Ideological and Political Education”.

2. THE SPECIAL NEEDS DURING THE POST-EPIDEMIC PERIOD

In early 2020, the COVID-19 epidemic (COVID-19) spread rapidly across the country, and it was also a major psychosocial event for those who experienced it. As a member of higher education in China, students in higher vocational colleges are also under psychological pressure. We should fully realize the importance and urgency of psychological support during the epidemic prevention and post-epidemic period. The students go back to the college campus and have psychological reactions such as stress, anxiety, tension, and depression.

Entering the phase of normal epidemic prevention, the activities of college back-to-school students are limited to the campus. During this period, more effort is needed in the day-to-day management of the campus. The daily teaching, which is on the front line, is indispensable. How to make the best use of classroom teaching, and so that college students can safely pass the epidemic prevention period, which has not yet ended, is the focus of attention for college teachers. As the teachers of public basic course—“Workplace English”, are racking their brains to explore the right way to make students confident, efficient and productive not only in class but also after class.

III. The ways to integrate English teaching of higher vocational Colleges with “Courses for Ideological and Political Education” in post-epidemic Period.

i. Having more in-class team tasks.

After a long time of travel restrictions, most communication opportunities between people are placed on the Internet, which is a lack of intimacy. Therefore, face-to-face communication is urgently needed to relieve the accumulated pressure. Then, the team task is realized by the way of face-to-face communication in class and online communication after class, which pools the wisdom and efforts of everyone and brings forward many ideas.

Taking “Workplace English” as an example, in addition to learning normal textbook knowledge, teachers give more chances to the students to finish the team tasks, to improve their teamwork and communication skills. For example, after completing the learning of Unit 1--People, the team task requires

three or four students to jointly present PPT files with the theme of “family relationship”. The assignments include written materials and pictures collection, English, or Chinese translation, PPT making and PPT presentation. All members participate, strengthen communication and cooperation, and develop everyone’s talent. In the evaluation, the focus would be on assessing the cooperation of the team.

ii. More after-class public welfare activities.

Through after-class public welfare activities to improve students' sense of dedication. English reading, writing, songs, poetry recitation, drama performance and other activities will be held every two weeks, and the results will be displayed publicly to improve the communication and help students find the pleasure of dedication in the process. Without leaving the campus, I can contribute to the epidemic prevention with various and meaningful activities.

3. INSPIRING STUDENTS’ GRATITUDE AND SENSE OF NATIONAL PRIDE WITH CURRENT EVENTS AND REAL DATA

Breaking the shackle of “Being oblivious of the outside world” and giving full play to the advantage of English classroom teaching, the students make regular comments on hot current events in English and

Chinese in class, understand the situation of epidemic prevention at home and abroad, so as to be grateful for the normal life now and enhance national pride and sense of responsibility.

Our country is trying the best to strengthen confidence and solidarity and take science-based and targeted measures, to ensure the availability of basic public services, to act responsibly in protecting the safety and health of her people, and contribute to safeguarding global public health and to form strong synergies to beat the pandemic. As a Chinese, we should do what we can to stand closely together in difficult times and to evoke positivity.

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