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CONTENTS

Calculation of Definite Integral on Symmetric Interval

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Abstract: This article mainly summarizes several definite integral calculation formulas defined on symmetrical intervals. By using the partial parity of the integrand, several formulas of definite integrals on symmetrical intervals are given, which simplifies the calculation of complex definite integrals. It also expounds the method of turning an asymmetric integration interval into a symmetric integration interval.

Keywords: Symmetric Interval; Parity; Definite Integrals

1. INTRODUCTION

Definite integral is one of the important contents, it is a useful tool to solve some practical problems in many circumstances, such as the area of irregular flat areas. The Newton-Leibniz formula is the main method for calculating definite integrals. In the calculation process for definite integral, however, we often encounter situations where the original function of the integrand is not easy to find, this kind of problem mostly appears in various math competitions. We shall combine the parity of the partial integrand and the symmetry of the integration interval to greatly simplify the calculation of definite integral.

In this paper, we study the calculation of the definite integral on the symmetric interval. The parity of the partial integrand can simplify a class of complex definite integral calculations, and easily solve definite integral calculations, further the integrand function form of this type of definite integral can be generalized, the general formulas for definite integral calculation on symmetrical interval are obtained.

2. DEFINITE INTEGRAL OF THE OVERALL ODD (EVEN) OF THE INTEGRAND ON THE SYMMETRIC INTERVAL

LEMMA [1]**:** Suppose $f(x)$ is a continuous function on $[-a, a]$,

1) If $f(x)$ is an even function, then $\int_{-a}^{a} f(x)dx = 2\int_0^a f(x)dx$;

2) If $f(x)$ is an odd function, then $\int_{-a}^{a} f(x)dx = 0.$

If function has parity and the integration interval is not symmetric, we will convert the interval to a symmetric interval by using variable substitution, and use the definite integral formula of the parity function on the symmetric interval. See the following Theorem 1 for details.

THEOREM 1: Suppose $f(x)$ is a continuous function on $(-\infty, +\infty)$, $\forall a, b \in (-\infty, +\infty), a < b$

1) If $f(x)$ is an even function, then $\int_a^b f(x - \frac{a+b}{2})\, dx = 2\int_0^{\frac{b-a}{2}} f(x)\, dx$;

2) If $f(x)$ is an odd function, then $\int_a^b f(x - \frac{a+b}{2})\, dx = 0$.

Proof: Let $t = x - \frac{a+b}{2}$, then $\int_a^b f(x - \frac{a+b}{2})dx = \int_{\frac{a-b}{2}}^{\frac{b-a}{2}} f(t)dt$,

1) If $f(x)$ is an even function, then $\int_a^b f(x - \frac{a+b}{2})dx = \int_{\frac{a-b}{2}}^{\frac{b-a}{2}} f(t)dt = 2\int_0^{\frac{b-a}{2}} f(x)dx$.

2) If $f(x)$ is an odd function, then $\int_a^b f(x - \frac{a+b}{2})dx = \int_{\frac{a-b}{2}}^{\frac{b-a}{2}} f(t)dt = 0.$

Example 1 Calculate definite integral $\int_0^2 \sqrt{x^2 - 2x}dx$.

Solution: Notice the fact $\int_0^2 \sqrt{2x - x^2}\, dx = \int_0^2 \sqrt{1-(x-1)^2}\, dx$,

let $t = x - 1$, then

$$\int_0^2 \sqrt{2x - x^2}\, dx = \int_0^2 \sqrt{1-(x-1)^2}\, dx = \int_{-1}^{1} \sqrt{1-t^2}\, dt = \frac{\pi}{2}.$$

Example 2 Calculate definite integral $\int_{\frac{3}{2}\pi}^{\frac{5}{2}\pi} \sin^{98} x dx$.

Solution: According to the inducement formula, we have

$$\int_{\frac{3}{2}\pi}^{\frac{5}{2}\pi} \sin^{98} x dx = \int_{\frac{3}{2}\pi}^{\frac{5}{2}\pi} \sin^{98}(x - 2\pi) dx.$$

Let $t = x - 2\pi$, then

$$\int_{\frac{3}{2}\pi}^{\frac{5}{2}\pi} \sin^{98} x dx = \int_{\frac{3}{2}\pi}^{\frac{5}{2}\pi} \sin^{98}(x-2\pi)dx = \int_{-\frac{1}{2}\pi}^{\frac{1}{2}\pi} \sin^{98} t dt = 2\int_0^{\frac{1}{2}\pi} \sin^{98} t dt = \frac{(97)!!}{(98)!!}\cdot \pi.$$

When the integration interval is symmetric, and the integrand has no parity, the calculation of definite integral is simplified by constructing the parity of the integrand.

3. DEFINITE INTEGRAL OF THE PART OF INTEGRAND HAS PARITY ON THE SYMMETRIC INTERVAL

THEOREM 2: If $f(x)$ and $g(x)$ are continuous functions on$[-a,a]$, respectively, then

$$\int_{-a}^{a} f(x)g(x)\,dx = \begin{cases} \int_0^a g(x)\,[f(x)-f(-x)]dx, & g(x)\text{is odd}, \\ \int_0^a g(x)\,[f(x)+f(-x)]dx, & g(x)\text{is even}. \end{cases} \quad (1)$$

Proof: Let $F(x)=f(x)g(x)+f(-x)g(-x), G(x)=f(x)g(x)-f(-x)g(-x)$,

then $F(x)$ is continuous and even on $[-a,a]$, $G(x)$ is continuous and odd on $[-a,a]$.

Notice that $f(x)g(x)=\frac{1}{2}[F(x)+G(x)]$, one has

$$\int_{-a}^{a} f(x)g(x)\,dx = \frac{1}{2}\int_{-a}^{a}[F(x)+G(x)]\,dx$$

$$= \int_0^a F(x)\,dx$$

$$= \int_0^a [f(x)g(x)+f(-x)g(-x)]\,dx$$

$$= \begin{cases} \int_0^a g(x)\,[f(x)-f(-x)]dx, & g(x)\text{is odd}, \\ \int_0^a g(x)\,[f(x)+f(-x)]dx, & g(x)\text{is even}. \end{cases}$$

Example 3. Calculate definite integral $\int_{-2}^{2} x\ln(1+e^x)dx$.

Solution: Let $f(x)=\ln(1+e^x), g(x)=x$,

then $f(x)-f(-x)=\ln(1+e^x)-\ln(1+e^{-x})=x$.

Because $g(x)$ is an odd function, according to formula (1), it follows

$$\int_{-2}^{2} x\ln(1+e^x)dx = \int_0^2 x[\ln(1+e^x)-\ln(1+e^{-x})]dx = \int_0^2 x^2dx = \frac{8}{3}.$$

Next, consider the case where $g(x)$ is an even function, a series of promotion and application of the theorem were carried out.

If the assumption $f(x)+f(-x)=A$ holds, and A is a constant in Theorem 2, we can obtain the following Theorem 3.

THEOREM 3: If $f(x)$, $g(x)$ are continuous functions on $[-a,a]$, and $f(x)+f(-x)=A$, $g(x)$ is an even function, then $\int_{-a}^{a} f(x)g(x)dx = A\int_0^a g(x)dx$.

Consider a few special cases for $f(x)$ in Theorem 3, we can get the following five corollaries.

Corollary 1: If $g(x)$ is a continuous even function on $[-a,a]$, $h(x)$ is an odd function on $[-a,a]$ and derivable, then

1) $\int_{-a}^{a} g(x)\arctan b^{h(x)}dx = \frac{\pi}{2}\int_0^a g(x)dx, \quad (b>0, b\neq 1)$,

2) $\int_{-a}^{a} g(x)\operatorname{arccot} b^{-h(x)}dx = \frac{\pi}{2}\int_0^a g(x)dx, \quad (b>0, b\neq 1)$.

Only the proof of the first equation of Corollary 1 is given here, the second equation can be proved in similar way.

Proof: Let $f(x)=\arctan b^{h(x)}$, and

$F(x)=f(x)+f(-x)=arctan\, b^{h(x)}+arctan\, b^{h(-x)}, x\in[-a,a]$,

Calculating the first order derivative, one has

$$F'(x)=\frac{h'(x)b^{h(x)}\ln b}{1+b^{2h(x)}}-\frac{h'(-x)b^{h(-x)}\ln b}{1+b^{2h(-x)}}$$

$$=\frac{h'(x)b^{h(x)}\ln b}{1+b^{2h(x)}}-\frac{h'(x)b^{-h(x)}\ln b}{1+b^{-2h(x)}}$$

$$=\frac{h'(x)b^{h(x)}\ln b}{1+b^{2h(x)}}-\frac{h'(x)b^{h(x)}\ln b}{1+b^{2h(x)}}=0.$$

It implies that $F(x)=C, x\in[-a,a]$,

It is clear that $C=F(0)=\frac{\pi}{2}$, thus $f(x)+f(-x)=\frac{\pi}{2}$,

According to Theorem 3, $\int_{-a}^{a} g(x)\arctan b^{h(x)}dx = \frac{\pi}{2}\int_0^a g(x)dx.$

If $h(x)=x$ in Corollary 1, then we can get Corollary **7** in references [2], and if $h(x)=x^{2n-1}$ in Corollary 1, we can get the following Corollary 2**.**

Corollary2: If $g(x)$ is continuous even on $[-a,a]$, then

1) $\int_{-a}^{a} g(x)\arctan b^{x^{2n-1}}dx = \frac{\pi}{2}\int_0^a g(x)dx,$
$(b>0, b\neq 1, n\in Z^+)$

2) $\int_{-a}^{a} g(x)\operatorname{arccot} b^{-x^{2n-1}}dx = \frac{\pi}{2}\int_0^a g(x)dx,$
$(b>0, b\neq 1, n\in Z^+)$

Only the proof of the first equation of Corollary 2 is given here, the second equation can be proved in similar way.

Proof: Let $f(x)=\arctan b^{x^{2n-1}}$, and

$F(x)=f(x)+f(-x)=arctan\, b^{x^{2n-1}}+arctan\, b^{-x^{2n-1}}, x\in[-a,a]$,

Calculating the first order derivative, one has

$$F'(x)=\frac{(2n-1)x^{2n-2}b^{x^{2n-1}}\ln b}{1+b^{2x^{2n-1}}}-\frac{(2n-1)x^{2n-2}b^{-x^{2n-1}}\ln b}{1+b^{-2x^{2n-1}}}$$

$$=\frac{(2n-1)x^{2n-2}b^{x^{2n-1}}\ln b}{1+b^{2x^{2n-1}}}-\frac{(2n-1)x^{2n-2}b^{x^{2n-1}}\ln b}{1+b^{2x^{2n-1}}}=0,$$

It implies that $F(x)=C, x\in[-a,a]$,

It is clear that $C=F(0)=\frac{\pi}{2}$, thus $f(x)+f(-x)=\frac{\pi}{2}$,

According to Theorem 3, $\int_{-a}^{a} g(x)\arctan b^{x^{2n-1}}dx = \frac{\pi}{2}\int_0^a g(x)dx.$

If let $b=e$, then we can promote the third property and the eighth property in references [3].

Corollary3: If $u(x), g(x)$ are continuous functions on $[-a,a]$, and $u(x)u(-x)=1, g(x)$ is even, then

$\int_{-a}^{a} \frac{g(x)}{1+u(x)}dx = \int_{0}^{a} g(x)dx$.

Proof: Let $f(x) = \frac{1}{1+u(x)}$, then $f(x)+f(-x) = \frac{1}{1+u(x)} + \frac{1}{1+u(-x)} = 1$, according to Theorem 3, one has $\int_{-a}^{a} \frac{g(x)}{1+u(x)} dx = \int_{0}^{a} g(x) \left[\frac{1}{1+u(x)} + \frac{u(x)}{1+u(x)}\right] dx = \int_{0}^{a} g(x)\, dx$.

Corollary4[4]**:** If $g(x)$ is a continuous even function on $[-a,a]$, $h(x)$ is a continuous odd function on $[-a,a]$, then $\int_{-a}^{a} \frac{g(x)}{1+b^{h(x)}} dx = \int_{0}^{a} g(x)\, dx, (b > 0, b \neq 1)$.

Proof**:** Let $f(x) = \frac{1}{1+b^{h(x)}}$, then $f(x) + f(-x) = \frac{1}{1+b^{h(x)}} + \frac{1}{1+b^{h(-x)}} = \frac{1}{1+b^{h(x)}} + \frac{1}{1+b^{-h(x)}} = 1$,

According to Theorem 3, one has $\int_{-a}^{a} \frac{g(x)}{1+b^{h(x)}} dx = \int_{0}^{a} g(x)\, dx$. If $h(x) = x$, then Corollary **6** in references [4] is given.

Corollary5: Suppose $g(x)$ is a continuous odd function on $[-a,a]$, $h(x)$ is a continuous odd function on $[-a,a]$, then $\int_{-a}^{a} g(x)\, ln(1 + b^{h(x)})\, dx = ln\, b \int_{0}^{a} g(x)\, h(x)dx, (b > 0, b \neq 1)$.

Proof**:** Let $f(x) = \ln(1+b^{h(x)})$, and

$f(x) - f(-x) = \ln(1+b^{h(x)}) + \ln(1+b^{h(-x)})$

$= \ln(1+b^{h(x)}) - \ln(1+b^{-h(x)}) = h(x)\ln b$,

According to Theorem 3, $\int_{-a}^{a} g(x)\ln(1+b^{h(x)})dx = \ln b \int_{0}^{a} g(x)h(x)dx.$

If $h(x) = x$, then Corollary 9 in references [2] is given.

Next, we illustrate the application of the above propositions with examples.

Example 4. Calculate definite integral $\int_{-1}^{1} x^2\, arctan\, e^{x^3}\, dx$.

Solution: Let $f(x) = \arctan e^{x^3}, g(x) = x^2$,

It is clear that $f(x) + f(-x) = arctan\, e^{x^3} + arctan\, e^{-x^3} = \frac{\pi}{2}$.

Thus, $\int_{-1}^{1} x^2\, arctan\, e^{x^3}\, dx = \int_{0}^{1} x^2[arctan\, e^{x^3} + arctan\, e^{-x^3}]dx = \frac{\pi}{2}\int_{0}^{1} x^2\, dx = \frac{\pi}{6}$.

Example 5. Calculate definite integral $\int_{-\frac{\pi}{2}}^{\frac{\pi}{2}} \frac{cos\, x}{1+e^x} dx$.

Solution: Let $u(x) = e^x, g(x) = cos\, x$, notice that $u(x)u(-x) = 1$,

By using **C**orollary 3, we have

$\int_{-\frac{\pi}{2}}^{\frac{\pi}{2}} \frac{cos\, x}{1+e^x} dx = \int_{0}^{\frac{\pi}{2}} cos\, x\, dx = 1.$

Example 6. Calculate definite integral $\int_{-\frac{\pi}{2}}^{\frac{\pi}{2}} \frac{e^x\, sin^2\, x\, cos\, x}{1+e^x} dx$.

Solution: Let $u(x) = e^{-x}, g(x) = \sin^2 x \cos x$, it is clear $u(x)u(-x) = 1$,

According to Corollary3, we have

$\int_{-\frac{\pi}{2}}^{\frac{\pi}{2}} \frac{e^x \sin^2 x \cos x}{1+e^x} dx = \int_{0}^{\frac{\pi}{2}} \sin^2 x \cos x dx = \frac{1}{3}.$

Example 7. Calculate definite integral $\int_{-\frac{\pi}{2}}^{\frac{\pi}{2}} \sin x \ln(1+e^x)dx$.

Solution: Let $f(x) = \ln(1+e^x), g(x) = \sin x$, it is clear $f(x) - f(-x) = \ln(1+e^x) - \ln(1+e^{-x}) = x$,

According to Corollary 5, we have

$$\int_{-\frac{\pi}{2}}^{\frac{\pi}{2}} sin\, x\, ln(1 + e^x)dx = \int_{0}^{\frac{\pi}{2}} x\, sin\, x\, dx$$

$$= -\int_{0}^{\frac{\pi}{2}} x\, d\, cos\, x$$

$$= -(xcos|_0^{\frac{\pi}{2}} \int_{0}^{\frac{\pi}{2}} cos\, x \Bigg|$$

3. CONCLUSIONS

According to the above discussion, as can be seen, the definite integral $\int_{-a}^{a} f(x)g(x)\, dx$ when the integrand on the symmetric interval has partial parity, as long as the original function of $f(x) + f(-x)$ is easier to find than $f(x)$, we can turn it into $\int_{0}^{a}[f(x) + f(-x)]g(x)\, dx$, and according to the different types of $f(x) + f(-x)$. A series of calculation formulas of definite integrals with such characteristics are given, I hope that the teaching and research of definite integral can be promoted.

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CONFLICTS OF INTEREST

The authors declare that there are no conflicts of interest regarding the publication of this paper.

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The Research of Multi-party Cooperative Education Helps New Engineering Construction

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Abstract: In order to better do a good job in the construction of new engineering disciplines in local undergraduate colleges and universities, it is necessary to explore a cooperative education model that conforms to the actual situation. Aiming at the problems of the current school-enterprise cooperation model, a cooperation framework that meets the wishes of multiple parties is proposed to achieve a win-win situation for all parties. Under the leadership of the government, the introduction of industry organizations for practical training not only solves the practical difficulties of schools, but also reduces the burden on employers; it not only makes full use of social resources, but also improves the efficiency of talent training. The joint training mechanism of multi-party cooperation is expected to solve the difficulties of existing training methods and help the construction of new engineering disciplines.
Key words: New Engineering; School-Enterprise Cooperation; Talent Training Model; Multi-Party Cooperation

For the new engineering majors of local undergraduate colleges and universities, it is necessary to achieve output-based education (OBE), with the goal of cultivating innovative engineering and scientific talents. Most schools have the following problems: teachers are weak and cannot meet the requirements of new engineering. The need for professional construction; the concept of running a school is relatively lagging and cannot adapt to the development of engineering; the practical links and curriculum system cannot match the needs of the construction of new engineering. Traditional school-enterprise cooperation has the problems of heavy burden on enterprises and low resource utilization. This article aims to explore and study these common problems, and then propose solutions to the current problems in the construction of new engineering disciplines in local undergraduate universities.

Due to the “new|” nature of engineering majors in newly-built undergraduate colleges and universities, there are great difficulties in recruiting talents. The school makes plans every year, and there are very few applicants. In recent years, enterprises have a strong demand for talents in new engineering disciplines, which is the main reason for the difficulty in recruiting teachers. This has led to the inability to enrich the teaching staff of the new engineering majors, leading to the inability to meet the needs of professional construction and talent training. Secondly, at the initial stage of the construction of new majors, teachers are basically staffed from other similar majors. These teachers are not able to understand the new engineering disciplines and teach follow-up professional courses, especially in the practical training link. Therefore, it is very urgent to solve the problem of insufficient teachers.

In newly-built local undergraduate colleges and universities, due to the short construction time of engineering courses, lack of experience in engineering education and relatively lagging ideas for running schools are common problems. Under the drive of the transformation and development of colleges and universities, the administrators of colleges and universities should change their educational concepts and promote the reform of the talent training model. At present, Outcome-based Education (OBE) education reform has become a mainstream international trend. my country also joined the “Washington Agreement” in June 2013, which means that the construction of new engineering disciplines should be adapted to engineering certification Professional standards. If students are still trained in accordance with the past school-running ideas and training system, it will inevitably be difficult to achieve the goal of training qualified engineering talents.

For the new engineering disciplines of local newly-built undergraduate colleges and universities, due to the shortage of leading talents and the unclear target orientation of professional construction, the curriculum system design is bound to be incomplete. It may lead to disorderly courses and unclear development direction. In addition, the experimental equipment currently available in the school is simple and has low compatibility with the content of new engineering majors, and cannot meet the needs of cultivating educational engineering talents in the practice and training links.

To solve this problem, it is necessary to open up external space and seek cooperation in education and teaching. In the traditional school-enterprise cooperation, the school and the company are connected, and the company provides funds for equipment and technical personnel training. This method requires a large investment for the company, and the utilization rate of the equipment is low, and the company's willingness is not strong. Therefore, it is very meaningful to explore new cooperation mechanisms.

In order to explore the establishment of a new cooperative education mechanism of school-enterprise, school location, school and international cooperation, attract social resources and high-quality educational resources to invest in the cultivation of innovative and entrepreneurial talents. In 2016, Zhoukou Normal University and Zhongda Electronics (Jiangsu) Co., Ltd. signed a joint training agreement and established the "Special Class for Applied Technical Talents". At present, the special class for talents has sent 51 engineers to the enterprise. Students in the special class choose different courses according to the job requirements of the company, and plan to train and practice their hands-on skills. To this end, the 2016 version of the talent training plan for the corresponding engineering majors has been revised, adding corporate curriculum modules, and increasing the knowledge often used in work such as optical software design/PLC. It is found through cooperation that although this kind of training method is effective, it has to pay a relatively high price for the enterprise.

Establish a complete talent training model for the integration of production and education and tripartite collaborative education. Under the leadership of the government, we will actively introduce the collaborative education model of production and education integration with the participation of industries and enterprises. Industry (third-party training), enterprises and schools jointly participate in the training and monitoring of the quality of talent training, and provide references for the integration of production and education in engineering majors and the education of production, education and research. Through collaborative education, the employment quality and employability of graduates can be effectively improved; the joint training of schools, industries (third-party training), and enterprises is conducive to the introduction of advanced technologies and concepts from the industry (third-party training) and enterprises Classrooms enable students to accumulate knowledge of job requirements at the learning stage, complete the seamless connection between talent training and the needs of the enterprise industry, and achieve a win-win situation for schools, students, industry (third-party training), and enterprises.

To solve the contradiction between the "supply and demand" of talent supply and demand, the practical experience of higher education reform and development shows that we must follow the basic idea of open school running, and take the road of industry-education integration and school-enterprise cooperation. Give full play to their respective advantages and jointly cultivate qualified new engineering talents.

The implementation of the new training method can not only solve the current dilemma of new engineering education, but also help to further deepen the reform of education and teaching and improve the quality of talent training. The integration of production and education, and production, education and research are important ways to accelerate the development of applied higher education. The introduction of a school-enterprise cooperation mechanism for third-party training can solve all difficulties, improve the quality of new engineering talent training, and achieve the greatest benefits of all parties. change. Realize "let professional people do professional things" and help the training of new engineering talents.

To explore the establishment of a multi-party collaborative education talent training model, the main body of the school needs to base itself on its own reality, give full play to the advantages and characteristics of running a school, and actively introduce enterprise and third-party training into talent training under the leadership of the government. Third-party training makes full use of its own advantages in education experience and technical resources to cultivate professional counterparts for enterprises while applying market rules to maximize their commercial interests. As far as the company is concerned, it not only obtains the talents of new engineering subjects, but also saves the cost of staff training. For schools, this mechanism can not only solve the disadvantages of educational concepts and teaching resources, but also improve the quality of employment and employment rate.

Based on the concept of multi-party collaborative education, with new engineering students as the training object, under the leading role of the local government, the introduction of third-party training in the school-enterprise tripartite education mechanism effectively promotes the full involvement of industry and corporate resources in the training of new engineering talents. Formed a multi-party collaborative education professional and technical personnel training model. Each participant plays a different role, not only cooperates with each other, but also restricts and influences each other, forming an organic whole with complementary advantages and highly integrated resources.

The expected relationships and responsibilities between the participating parties under the leadership of the government are as follows.

	Colleges	**Company**	**Third-party training**
Colleges	Can overcome lagging educational concepts and shortcomings in resources, achieve high-quality talent training, and improve employment quality and employment rate	Determine training goals, practice employment, training feedback and recruitment, etc.	Determine training projects, team building, training base construction, management and quality monitoring
Company	/	Able to acquire new engineering talents, and at the same time eliminate the need	/

		for pre-job training and improve efficiency.	
Third-party training	/	The company proposes professional skills training requirements, determines training subjects and standards, and has a third-party implementation plan.	Apply market-oriented rules, effectively use its own resources and technology, and maximize benefits.

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Study on the Influencing Factors of Ecosystem Service Value: Based on Urban Environmental Governance in Beijing

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Abstract: Urban environmental governance, as an important part of urban governance, is an important part of ecological civilization construction in the comprehensive deepening reform. This paper is dedicated to analyzing the environmental governance part of traditional urban habitat research and analyzing the spatial spillover effect of urban environmental policy effectiveness based on the regional linkage perspective using the spatial Durbin model. In this paper, data of 16 districts in Beijing for four periods of 2010, 2013, 2015, and 2018 were selected to reflect the main influencing elements of governance effectiveness using ecosystem service values. The analysis of regression results found that: Urban governance and environmental construction in Beijing have achieved a relatively good coordination and interaction in general. Environmental governance policies in each district still have shortcomings, with blind expansion and lack of overall development awareness being the two main problems.
Keywords: Ecosystem Service Value; Urban Environmental Governance; Spatial Effects

1. INTRODUCTION

As an important part of urban governance, urban environmental management is an important part of ecological civilization construction, and urban construction has undergone the transformation from serving the needs of initial agricultural production to clean urban life [1], meanwhile the research on the evaluation criteria of urban ecological construction has been enriched, from the evaluation of green areas, industries, three waste treatment and other aspects of construction [2], and also focusing on the design of the element layer to the target layer of urban sustainable layer evaluation [3]. There are also studies that focus on the evaluation of sustainable urban layers from the design element layer to the target layer [3]. A large number of studies have emphasized the need to establish multi-level and multi-element evaluation guidelines based on certain evaluation guidelines [4], and to adopt different urban evaluation guidelines for different types of cities, among which urban environment, as an important part of urban hard environment quality evaluation, is directly related to the quality of habitat [5]. At present, the study of urban habitat impact factors has become the core of urban governance research [6-8], and the urban environment research under the independent module is mainly combined with urban economic development to analyze the interactive impact and spatial spillover effect of both sides, and the concept of regional synergy is emphasized [9], while the field of ecological compensation has been expanded in urban ecology research [10], which indicates that urban environment is becoming an increasingly This indicates that urban environment is becoming an important research subject.

Traditional urban governance studies focus more on the habitat environment and often involve the environmental part as a sub-part in the overall habitat quality analysis, thus failing to make a more detailed discussion and analysis of the influencing factors of changes in these sub-part. Ecosystem services value refers to the benefits that humans obtain from the ecosystem in a direct or indirect way in order to survive or improve the quality of life, and the quantitative assessment of the value is important for maintaining regional ecological security and promoting the coordinated development of regional economy and environment [11], by studying the positive or negative service functions provided by land as a spatial carrier, the different utilization intensity states shaped by different land use methods By studying the impact of different land use methods on the overall coordination and balance of service functions and economic growth [12], the effectiveness and ecological potential of urban ecological construction can be effectively presented. This paper aims to introduce the advantages of the spatial Durbin model in the study of spatial interactions into the study, and to clarify the influence of the intrinsic factor action mechanism on urban environmental management initiatives from a regional linkage perspective. It also integrates carbon neutrality and carbon peaking targets with the effectiveness of urban environmental management, and incorporates the effectiveness of plant carbon sequestration and CO_2 emissions into the overall research analysis.

2. STUDY DESIGN

(1) Selection of indicators

The research sample of this paper is sixteen districts in Beijing, and the time periods are 2010, 2013, 2015 and 2018 in total. The land use data and other economic data are obtained from the Beijing Statistical Yearbook and the Beijing Regional Statistical Yearbook.

Table 1 Variable Selection

Variable type	Variable code	Variable name	Unit
Dependent variable	ESV	Ecosystem service value	Yuan/hm2
Independent variable	CSP	Carbon sequestration of terrestrial plants	Ton
	I	Environmental Investment	Billion
	Energy	Energy consumption reduction rate of 10, 000 Yuan	%
	Greening rate	Forest greening rate	%
	GDR	Garbage disposal rate	%
	GDC	Garbage disposal capacity	Ton
	PM2.5	Fine particulate matter	μg/m3

As shown in Table 1, ecosystem services value is the benefit that human beings obtain from the ecosystem in a direct or indirect way in order to survive or improve the quality of life, and the magnitude of its benefit directly reflects the ecological civilization of a region. The amount of carbon sequestered by terrestrial ecosystems is the amount of carbon dioxide fixed by plants through photosynthesis, which together with carbon dioxide emission reflects the effectiveness of urban vegetation environment and atmospheric control. The energy consumption reduction rate reflects the overall reduction rate of production energy consumption. The forest greening rate reflects the proportion of urban forest. PM2.5 reflects the quality of air environment.

(2) Model Design

This paper combines the research methodology established by Xie Heights (2015) and others based on Costanza (1997) and improved with the ecosystem and socioeconomic conditions in China and refers to existing studies. The net profit of food production per unit area of farmland ecosystem was calculated as the ecosystem services value owith one standard equivalent factor based on 2010 data, and ecosystem services value with one standard equivalent factor (Yuan/hm2) was obtained as 3406.5 Yuan/hm2, and the ratio of grain production per unit area in the study area to grain production per unit area nationwide was used to determine the correction factor for Beijing. A more mature method was used to determine the correction factor for Beijing. Equation (1), f is the grain yield per unit area in Beijing, and F is the national grain yield for the same period, to calculate the correction factor of 1.034 for Beijing. The base table was derived from the table of equivalence factors of terrestrial ecosystems and land use area in China. The basic geographic data were obtained from the Resource and Environmental Science and Data Center of the Chinese Academy of Sciences, and the agricultural economic data were obtained from the China Statistical Yearbook and the National Compilation of Cost and Benefit Information of Agricultural Products.

At the same time, in order to eliminate the impact of price changes, the consumer price index for food in the relevant years in Beijing, Tianjin and Hebei Province was introduced to unify the price levels, calculated as follows.

$$W_{ij} = \frac{1}{7} \times P_{ij} \times Q_{ij}, i = 1, 2, 3; j = 1, 2, 3, 4 \quad (1)$$

In Eq. (1), W_{ij} denotes the economic value quantity of 1 standard equivalent factor (yuan/hm2) in different years in each province and city; $i = 1, 2, 3$ denotes Beijing, Tianjin and Hebei Province, respectively; $j = 1, 2, 3, 4$ denotes 2010, 2013, 2015 and 2018, respectively; P_{ij} is the average price of grain in different years in each province and city after unified price; Q_{ij} denotes the unit area yield (kg/hm2) in different years in each province and city

$$ESV = \sum_{k=1}^{4} (S_k \times UESV_k) \quad (2)$$

$$\overline{ESV_{pj}} = \frac{ESVpj}{S_{pj}}, p = 1, 2, ...43 \quad (3)$$

$$R = \frac{\overline{ESV_{p(j+1)}} - \overline{ESV_{pj}}}{\overline{ESV_{pj}}} \times 100\% \quad (4)$$

In Eqs.2, ESV is the ecosystem service value; A_K is the area of land use type K; VC_K is the coefficient of ecosystem service value of land use type K; ESV_N is the Nth service function ecosystem service value; In Eqs.3, VC_{Nk} is the Nth service function value coefficient of land use type K. The results are shown in Table 2.

Table 2 The economic value of 1 standard equivalent factor of Beijing

	2010	2013	2015	2018
Beijing	1518.08	2219.70	2016.83	2097.80

The spatial weight matrix describes the neighboring relationship between a region and other regions whose proximity has an impact on the degree of mutual influence of variables. The spatial weight matrix W is a normalized 16×16 (0-1) geographic adjacency matrix, i.e., 1 for the existence of bordering two regions and 0 for the opposite. its matrix elements are as follows.

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$$W_{ab} = f(x) = \begin{cases} 1, \text{a is adjacent to b} \\ 0, \text{a is not adjacent to b} \end{cases} \quad (5)$$

The four time points are based on the 12th Five-Year Plan of Beijing, and the interaction of the 12th Five-Year Plan with the two systems of urban environment and ecological changes in Beijing is analyzed through the pre-implementation, pre-implementation, mid-implementation, and new periods of the plan. In terms of policy orientation, the 2011 Beijing Environmental Protection and Construction Plan for the 12th Five-Year Plan began to require the implementation of environmental protection measures in nine aspects of the urban environment, and to investigate various pollution treatments; the 2018 Beijing Municipal People's Government of the Communist Party of China on Comprehensively Strengthening Ecological Environmental Protection and Resolutely Fighting Beijing's The "Opinions of the Beijing Municipal People's Government on Comprehensively Strengthening Ecological Environmental Protection and Resolutely Fighting the Battle of Pollution Prevention and Control" put forward a guiding outline, from elaborating the governance measures and principles that should be implemented for ecological environmental protection. By observing three times before, during and after the implementation of the relevant policies, the impact of policy-oriented urban environmental governance on the ecosystem service value in Beijing can be analyzed.

The difference between spatial econometric models and general econometric models lies in the introduction of spatial effects, the former emphasizing regional variability and regional dependence of the cross-sectional dimension of the data compared with the latter, and conducting sequential analysis in each temporal and spatial dimension, which mainly includes spatial Durbin model, spatial autoregressive model, and spatial error model.

$$Y_{it} = \delta W Y_{it} + \alpha X_{it} + \mu W X_{it} + \varepsilon_{it} \quad (6)$$

$$\varepsilon_{it} = \theta W \varepsilon_{it} + \varphi_{it} \quad (7)$$

In Eqs. (13) and (14), Y_{it} is the explained variable in the spatial econometric model, which denotes the ESV of city (district) i in year t; X_{it} is the explanatory variable, W is the spatial weight matrix based on the distance function, α is the regression coefficient of the explanatory variable, μ is the spatial spillover coefficient, ε_{it} is the random error term, φ_{it} is the random error term of normal distribution, θ is the spatial autocorrelation coefficient. WY_{it} is the cross product term of the spatial weights and the explanatory variables, WX_{it} is the cross product term of the spatial weights and the explanatory variables, and Wε_it is the cross product term of the spatial weights and the random error term.

Where Eq. 1 is the SDM model when $\theta = 0$ and neither δ nor μ is zero; Eq. 1 is the SAR model when $\delta \neq 0$ and $\mu = 0$; and Eq. 1 is the SEM model when $\theta \neq 0$ and $\delta = 0$.

As shown in Table 3, the model passed the 5% and 1% significance levels in the LR test and Wald test, respectively, proving that the SDM model does not degenerate into the SAR model and SEM model. the Hausman test passed the 10% significance level test.

Table 3 Results of LR test, Wald test and Hausman test

LR Test	Wald Test	Hausman test
Likelihood ratio test LR chi2(6) =16.14 Prob > chi2 = 0.02	chi2(7) =18.85	chi2(7) = (b-B)'[(V_b-V_B)^(-1)](b-B)=13.06
(Assumption: SAR is nested in SDM)	Prob > chi2 = 0.00	Prob>chi2 =0.07
Likelihood ratio test LR chi2(6) = 15.97 Prob > chi2 = 0.02		
(Assumption: SEM is nested in SDM)		

3. ANALYSIS OF REGRESSION RESULTS

In this paper, based on the stata15.0 econometric software and referring to the processing methods of Zhonglin Bai [13] and Yujun Lian [14] on panel data, the SDM model was used to analyze the drivers of dui ecosystem service value change. Variables with significantly large coefficient interpretations that were influenced by the magnitude were logarithmized. The results are shown in Table 4, and in Table 5 and create a panel regression model to form a control.

In the table 4, the estimated value of spatial autocorrelation coefficient is -0.58, and its estimated value passes the 1% significance level test, indicating that the effectiveness of urban governance within a single region will significantly radiate outward and inhibit the enhancement of ecosystem service value in the surrounding neighboring regions, reflecting that the urban governance measures of each region are more limited to the development perspective of the region rather than based on the perspective of synergistic development.

Based on the SDM model, the direct effect represents the average impact of the variable on the local ESV, while the indirect effect represents the average impact of the variable on the ESV of the neighboring areas.

A panel regression model was developed to compare the results of the panel model with the direct coefficients of the SDM model, and the positive and negative coefficients were highly consistent, i.e., the results of the panel regression model were more specific to the impact of urban environmental management measures on ESV in the region. However, the difference lies in that the SDM model expands the influence of treatment measures in neighboring areas on the change of ESV in the region, and introduces a spatial perspective into the overall analysis, thus providing a clearer understanding of the cross-regional influence of the influencing factors. Taking the effect of the total amount of garbage disposal capacity on ESV as an example, in the analysis of panel regression, the larger the amount of environmentally sound waste disposal, the greater the inhibitory effect on the value of local ecological services, but after decomposing its direct and indirect effects in the spatial Durbin model, the effect on the ecological environment of the region and neighboring regions is positive, and the overall effect is instead positive, and the positive effect is mainly provided by the neighboring regions.

Table 4 Regression results of SDM model

VARIABLES	Main	Wx	Spatial	Variance	LR_Direct	LR_Indirect	LR_Total
Ln_ CRP	-4.620***	-3.777			-4.458***	-0.835	-5.294**
P	-0.0002	-0.216			-0.0014	-0.709	-0.0141
Ln_ Energy	-0.0224	-1.341**			0.137	-0.987**	-0.850*
P	-0.9	-0.0139			-0.415	-0.013	-0.0545
Ln_ I	-0.288*	-1.446***			-0.119	-0.951***	-1.069***
P	-0.051	-0.0003			-0.393	-0.001	-0.0018
Ln_ GR	5.097***	10.10**			4.219**	5.256*	9.475***
P	-0.0072	-0.0136			-0.0218	-0.0657	-0.0048
Ln_ GDR	-8.092***	-32.26***			-4.703*	-20.43***	-25.13***
P	-0.0067	-0.0001			-0.0878	-0.0014	-0.0007
Ln_ GDC	0.693	3.959***			0.248	2.624***	2.872***
P	-0.149	-0.0022			-0.594	-0.0053	-0.004
Ln_PM2.5	-5.115***	-1.652			-5.277***	1.079	-4.199
P	-0.0012	-0.625			-0.0027	-0.663	-0.121
rho			-0.580***				
P			-0.0043				
sigma2_e				0.136***			
Observations	64						
R-squared	0.047						
Number	16						

Note: Note: P is the p-values. *** p<0.01, ** p<0.05, * p<0.1

Table 5 Panel regression results

VARIABLES	Panel regression
Ln_ CRP	-2.668*
P	(-1.92)
Ln_Energy	0.318
P	(1.57)
Ln_I	0.156
P	(1.07)
Ln_GR	2.469
P	(1.11)
Ln_GDR	-1.052
P	(-0.31)
Ln_GDC	-0.103
P	(-0.19)
Ln_PM2.5	-0.969*
P	(-1.93)
Constant	1.773
P	(0.15)
Observations	64
Number of code	16
R-squared	0.284
Company FE	YES
Year FE	YES

Note: Note: P is the p-values. *** p<0.01, ** p<0.05, * p<0.1

The coefficients were classified by the coefficient characteristics of the imputed variables into those with enhancing and suppressing effects for the region and those with enhancing and suppressing effects for the neighboring regions. The core elements that influence the change in the value of ecological services in the region are Carbon sequestration of terrestrial plants, Forest greening rate, Garbage disposal rate, and PM2.5 values. The coefficient of Carbon sequestration of terrestrial plants is -4.458, i.e., an increase in Carbon sequestration of terrestrial plants leads to a decrease of 4.458 units of ecological coordination in the region, which needs to be analyzed together with environmental investment and forest greening rate. The overall effect of environmental investment on ESV is negative, combined with the basic fact that urbanization is expanding rapidly and a large number of native forests are being replaced. These deciduous broadleaf forests, which have just been planted, have a short-term impact on carbon fixation and sequestration, i.e., decay and decomposition within a short period of time, and the stored carbon is released back into the atmosphere [15], which causes forest greening to inevitably have two opposite effects, one positive effect from maintaining soil and water productivity, and the other a decrease in ESV from carbon loss. The negative effect of Garbage disposal rate can be attributed to the fact that the treatment technology and landfill technology are still backward and the overall quality of the treatment is low, resulting in the land still being affected by pollution, thus reducing the ESV.

The main variables that enhance and inhibit the effect for neighboring areas are Energy, Environmental Investment. The increase of urban forest greening rate and Garbage disposal capacity increases the ecosystem service value of the neighboring areas. In contrast, the expansion of waste disposal increases the ecosystem service value of neighboring areas. Combined with the negative effect of waste disposal on the environmental impact of the region, it can be judged that each region retains its own disposed waste rather than transferring pollution costs to neighboring regions.

4. POLICY RECOMMENDATIONS

Based on the above research analysis, it can be concluded that ① urban governance and environmental construction in Beijing have achieved a relatively good coordination and interaction, and the governance results are good. ② The urban governance policies in various regions of Beijing still have shortcomings, among which blind expansion and lack of overall development perspective are the two main problems. Blind expansion has brought about the crowding out of a large number of native plants that can improve ESV, and environmental policies lack a coordinated big-picture perspective for formulation.

Based on this conclusion, local governments should (1) formulate policies based on integrated thinking, both integrated planning and their own positioning on various development and environmental issues, realize functional collaboration among different regions, and clarify their sense of responsibility in the overall ecological construction; (2) continuously promote the transformation of development models, focus on urban environmental enhancement driven by development model transformation, and formulate coordinated environmental policies.

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Research on Credit Business of Commercial Banks under the Background of Internet Finance

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Abstract: Against the background of the rapid development of the Internet, mobile Internet and big data are also developing rapidly. The development and maturity of these technologies have made many Internet financial enterprises show greater advantages. These Internet financial enterprises use these advantages to design a lot of more universal products to be provided to various customers and attract a large number of customers of commercial banks. This is not conducive to the development of commercial banks. In order to pursue convenience and efficiency, many customers gradually turn their eyes to the products and services of these Internet enterprises, especially the young consumer groups, which are highly accepted and dare to take risks. This has led to a greater challenge to the business of traditional commercial banks and a threat to the principal position of commercial banks in credit business. Therefore, it is of great significance to study how to make use of the Internet technology to make preparations in advance and transform the development strategy so as to ensure the dominant position of bank credit business. On the basis of the above mentioned, firstly, the paper objectively analyzes the impact of Internet finance on the credit business of commercial banks and the reasons for the impact; secondly, the paper enumerates the impact of the development of Internet finance on the credit business of commercial banks; thirdly, the paper summarizes the problems existing in the development of Internet finance of commercial banks; finally, some relevant suggestions are put forward through the analysis of the existing problems, namely, firstly, changing the development concept and focusing on customers; secondly, transforming the loan process and innovating financial products; thirdly, cultivating compound talents of Internet finance and commercial banks; fourthly, improving the credit system and strengthening risk management.
Keywords: Internet Finance; Commercial Bank; Credit Business

1. INTRODUCTION

With the development of the society, the country pays more and more attention to the Internet finance. In the course of the operation of the commercial bank, the advantages of the bank are mainly embodied in the scale and the customers, but the sustainable development of the commercial bank is greatly impacted by the rapid progress and development of the mobile Internet technology. With the popularization and development of online lending platform, the credit business of traditional commercial banks has been separated, and the income based on credit business of commercial banks has been reduced. Obviously, the current development of Internet finance has brought a lot of negative impact on the traditional commercial bank credit business, which is unfavorable to the development of commercial banks. Therefore, commercial banks should pay more attention to Internet finance, carefully analyze the advantages and disadvantages, and actively take measures to cope with these effects, so as to ensure the dominant position of commercial banks in credit business and promote the long-term healthy development of commercial banks. Under the background of Internet finance, commercial banks shall also deeply understand and study Internet finance, make use of Internet technologies, combine with the traditional advantages of banks, further improve business capacity, cater to various needs of customers, and ensure further development of banks.

In many domestic literature, scholars gradually began to realize that the rapid development of Internet finance in the context of commercial bank credit business research, we can see that the rapid development of Internet finance on the development of commercial bank credit business is a great impact. Scholars Jia Fengtao pointed out that the impact of Internet finance on commercial banks mainly includes the impact on the status of commercial banks as the main body of credit business, making commercial banks reduce their income based on credit business, highlighting the drawbacks of traditional commercial banks' credit business and changing the supervision of credit business. However, the development of Internet technology also brings opportunities and challenges to commercial banks, including the Internet Finance can effectively improve the competitiveness of commercial banks' credit business, expand the credit business service channels of commercial banks, and commercial banks can gradually expand their business to the online. Therefore, commercial banks should actively respond to challenges, find out the problems of the banks themselves, and actively seek countermeasures. At present, most scholars have done little research on the problems existing in the credit business of commercial banks under the background of Internet finance, and the problems raised are not very comprehensive, mainly focusing on the development concepts, business processes, talent training, risk management and other aspects, and relatively few proposed response strategies, mainly focusing on customers, transforming processes and products, cultivating inter-disciplinary talents of Internet finance and commercial banks, and strengthening risk management. Based on the domestic situation, this paper sorts out the strategies of commercial banks' credit business under the background of Internet finance, so that banks can seize the opportunity, face the difficulties and promote the sustainable and healthy development of commercial banks.

Based on the background of Internet finance, this paper fully explores the impact on bank credit business, and puts forward solutions to the problems faced by banks in practice, so as to ensure the status of commercial banks in credit business and help commercial banks to develop healthily in the long term.

2. ANALYSIS OF CREDIT BUSINESS STATUS OF COMMERCIAL BANKS UNDER THE BACKGROUND OF INTERNET FINANCE

(1) Reasons for Internet Finance Reducing Credit Business of Commercial Banks

Diversified Internet finance credit products can better meet customer need. The promotion of customer needs, the reduction of transaction costs and costs and the restrictions of financial regulation have all contributed to the development and innovation of credit business by Internet finance enterprises, and it is precisely because of these innovations that Internet finance credit products have become richer and more diverse, greatly meeting the needs of credit customer. The development and application of the emerging modern information technology [1] make the Internet lending more convenient and fast, which not only greatly reduces the transaction costs of both parties in the lending transaction, simplifies the transaction process in the credit process, but also improves the efficiency of the lending transaction. In addition, the Internet finance credit products designed on the online lending platform fill the gap of the credit products of China's commercial banks very well. In the past, the loans of commercial banks were not feasible for small enterprises, and these emerging products just met the demand of small enterprises for credit products. Therefore, Internet finance will have great room for development, and the continuous innovation of Internet lending can serve China's financial market better.

Internet finance can solve the problem of information asymmetry in credit business. In the credit business of commercial banks, due to insufficient information in the process of lending, the party who has the effective information will choose the favorable strategy, which will bring certain losses to the party who has insufficient information. As we all know, the Internet platform has a great characteristic, that is, openness. Before the lending business is handled, both parties of the lending and borrowing business can first exchange information, and the exchange of information is timely and fast, which will not delay for a long time. This is a very effective information exchange, so as to avoid the losses arising from the asymmetry of information. For example, Internet finance can obtain the data on all transactions of clients through social network and e-commerce platform by virtue of the new generation of information technology, such as big data, etc., through analyzing these data, we can judge the needs of clients, and measure their credit status and solvency. Through these analysis and forecast, we can also carry out risk management and risk prevention and control, and reduce the transaction risks accordingly.

Internet finance can reduce the cost of credit business. Before doing credit business, commercial banks will conduct professional analysis and investigation on borrowers to investigate their credit records, repayment ability and so on. In this process, there will be a lot of human, material and time costs, in addition to the additional risk rating will be a cost, these costs will be added to the customer's transaction costs, so that customers bear too many costs. In contrast, in the context of Internet finance, both lenders and borrowers can directly participate in credit transactions, guarantee the results of transactions through data analysis and save a lot of labor costs and time costs, which is detrimental to commercial banks.

(2) Development of Credit Business of Commercial Banks under the Background of Internet Finance

Commercial banks are unable to meet the demand for loans for small and micro enterprises. In recent years, due to the increase of labor costs, material costs and other costs, the current domestic small and micro enterprise loan demand, high profit margins, showing a good prospect for development. But in fact, the traditional commercial bank credit way is suitable for the large and medium-sized enterprise, because the large and medium-sized enterprise cash turnover speed is quick, repayment ability is strong. This type of credit does not meet the needs of small and micro businesses. The reasons are as follows: First, small and micro enterprises are also unable to meet the requirements for mortgages and guarantees required for traditional credit, and commercial banks' requirements for mortgages and guarantees are not in line with the actual situation of small and micro enterprises, which is more costly and risky. Secondly, small and micro enterprises borrow more frequently, often facing funding shortfalls, and demand for funds more frequently[2] At present, China's commercial banks mainly provide loans to large and medium -sized enterprises, small and micro enterprises only a small part to get. Secondly, the policies and reforms of our country encourage the development of small and micro enterprises, but the existing rural and urban commercial banks and small loan companies can not provide enough funds to meet the needs of credit business of small and micro enterprises. These banks are not only unable to meet the credit needs of small and micro enterprises, and may even be counterproductive, making them more difficult to finance difficulties. In this case, for example, Alibaba, Jingdong Mall and other e-commerce enterprises to provide opportunities. E-commerce is more rapid and flexible than banking in terms of finance and can better meet the real needs of SMEs [3].

Diversified personal financing demands Commercial banks are difficult to meet. With the development of Internet technology, Internet companies, e-commerce platform companies and payment companies are making great efforts to develop personal credit business, which has successfully transferred part of the personal credit business of commercial banks, especially personal consumption credit business. At present, the continuous development of society, making online shopping also occupy a part of people's lives, and even more common than offline shopping, Taobao Alipay led by the development of personal credit business to promote the development, and the speed of development[4]. After Alipay, Tencent's WeChat began to develop rapidly, and WeChat as a social platform, favored by the people, so WeChat can also use the social function, increase many personal credit customers, especially WeChat platform to grab red envelope successfully attracted many middle-aged customers, greatly expanding the customer base, these functions make WeChat sustainable and healthy development, can facilitate customers to achieve all-round convenient payment, and then for customer financial convenience, WeChat payment also launched financial platform. These online personal financing also have a great negative impact on the traditional credit business operation mode of commercial banks. The traditional personal credit business of commercial banks, based on the handling of credit cards for customers, provides customers with online intelligent services through self-service systems such as online banking, satisfies customers' diversified needs, and improves customers' recognition of commercial banks. However, under the background of Internet finance, compared with the Internet finance that has developed rapidly such as Alipay and WeChat, these personal credit business that commercial banks can provide is far from meeting the needs of individual credit customers. Therefore, in the 21st century when people urgently need convenience and convenience, Internet finance obviously meets people's needs. In order to make sustainable development, commercial banks must learn from the experience of relevant institutions of Internet finance and develop their own Internet finance roads.

3. IMPACT OF INTERNET FINANCE ON CREDIT BUSINESS OF COMMERCIAL BANKS

(1) The positive impact of Internet finance on the credit business of commercial bank

The market competitiveness of commercial banks' credit business can be enhanced. In China's financial market, the government has adopted the corresponding policies to limit the price of funds, that is, the deposit and loan interest rates set by banks, and because of the high access conditions for commercial banks to handle business, and the government as the backing, commercial banks can also obtain a huge deposit and loan interest margin, so commercial banks have occupied the main position in the financial market. In the context of Internet finance, China's financial market is an open market, and both the borrower and the lender can determine the interest rate in the transaction process. In this case, Internet finance will stimulate commercial banks to carry out business reform and innovation, and introduce credit products in line with the current customer needs to fully occupy the market, so that the market share of commercial banks can be expanded[5].

Expand credit business service channels of commercial banks. In the context of Internet finance, the diversified credit products and services launched by Internet finance enterprises meet the credit needs of customers. With the development of Internet finance, financial customers pay more and more attention to the quality of credit services. In order to avoid the loss of funds and customers, commercial banks will make use of Internet technology to broaden the channels of credit business services and innovate the current credit business, thus putting forward higher requirements for the construction of their own credit business and developing more credit products suitable for modern society.

Reduce the cost of credit business. With the development of Internet finance, the trend of credit business of commercial banks is to emphasize data over collaterals. The amount of guarantee in credit business will be reduced, and the main basis of credit business will be the results of transaction data analysis of customers. Then the human and time costs spent by commercial banks in the process of guarantee will be greatly reduced. At the same time, if commercial banks make active use of Internet technology to build their own online credit service platform, it can not only expand credit business, but also increase profits and reduce credit business costs, which is also very beneficial to the development of commercial banks.

(2) Negative Impact of Internet Finance on Credit Business of Commercial Banks

Bank Credit Business Main Body Status Is Impacted. Against the background of the rapid development of Internet finance, the information platform in the transaction can provide various resources to the borrower and the lender, such as financial conditions, transaction information, etc., thus gradually weakening the credit business functions of commercial banks. For example, the Internet finance lending services provided by the online lending platform can replace the credit business functions of commercial banks, which impacts the main body status of credit business of commercial banks and gradually reduces the intermediary role of commercial banks. According to the statistics of the People's Bank of China, after the arrival of the Internet finance era in 2013, the scale of short-term loans of commercial banks has far exceeded the scale of long-term loans. Fundamentally speaking, the main reason for this phenomenon is that the main customers of credit services of Internet finance are small and medium enterprises, the rise of Internet finance, the Internet finance credit business attracts small and medium enterprises to provide online loans with its convenient and quick features, and leads to more and more small and medium enterprises to choose Internet finance loans. Traditional commercial banks, in response to the impact brought by Internet finance, adopt online credit, greatly reduce the intermediary role of commercial banks, and further cause a significant increase in the scale of online financing of commercial bank credit business, but the scale of offline financing has greatly reduced.

Reduced revenue from credit operations. When small and micro enterprises and individuals urgently need financing, and the borrowing time is short, traditional commercial banks will not provide funds due to the complexity of credit business. Commercial banks did not pay enough attention to individuals and small and micro enterprises before, and ignored this group of loans, so that small and micro enterprises frequently encountered the problem of no short-term working capital. In the context of Internet finance, the online lending platform, with its speedy features, just meets the needs of small and micro enterprises and individuals for funds. Internet finance provides these small and micro enterprises and individuals with fast and convenient financial support. Those small and micro enterprises, because they cannot obtain financing from commercial banks, prefer to choose the products provided by Internet finance enterprises, because these can better meet their needs for small loans. Small-sum loans are characterized by short term loans, small amounts of funds and high flexibility, which just meet the needs of small and micro enterprises and individual customer groups. This has also resulted in the loss of many customers by commercial banks, which has reduced the credit business of commercial banks and, in turn, the income obtained by traditional banks through loan interest spreads [7]. which has a considerable impact on the development of credit business by traditional commercial banks. Moreover, the credit mode of Internet Finance uses the operation of online platform, which greatly reduces the increase of the cost of Internet Finance in terms of manpower and material resources, so the cost of Internet Finance is much lower than that of traditional commercial banks, which will further reduce the profits of commercial banks based on credit business.

Disadvantages of traditional credit business process highlight. According to the requirements of the norms for the operation of loan business, the traditional loan procedures of commercial banks can be divided into three stages, namely, pre-loan investigation, loan examination and post-loan supervision, and in accordance with the provisions of the management system of "separation of loan examination and loan granting", it is required that the aforesaid three stages shall be separately divided into the hands of the staff members of three different professional positions for implementation, and each person shall be responsible for and bear all the risks brought to them by their own negligence in actual work at each stage, which are the important guarantee and basis for banks to prevent and control the risks existing in the credit process. However, in the current Internet financial system, the adoption of these processes is too cumbersome and complicated, and will hinder the rapid development of Internet financial, because the banks' adoption of these processes will consume a lot of human resources and certain time costs, and this will not be well applicable to the credit services under Internet financial. The examination and approval procedures and financing speed of commercial loans of traditional banks shall be strictly required. Before applying for loans, borrowers shall be investigated and analyzed in detail in terms of their credit status, profitability, short-term and long-term solvency [8].

4. PROBLEMS IN CREDIT BUSINESS OF COMMERCIAL BANKS UNDER THE BACKGROUND OF INTERNET FINANCE

(1) Over-emphasis on guarantees

In the context of Internet finance, credit business still relies on the guarantee will limit the development of commercial banks. Generally speaking, when the customer does the credit business, the most complicated and tedious link is the bank regarding the credit guarantee request, because the guarantee means the responsibility, the guarantor will have the guarantee responsibility in the credit follow-up development. As a result, many clients with good credit but no desire to bother others are turned away. And the credit of Internet finance does not have this kind of problem however, because Internet can record daily trade data, can deduce the credit state of the client through data analysis, need not assure. A borrower who borrows money on a platform like Alipay will lose the opportunity to shop in Taobao, one of the most basic software shortcuts of the 21st century, if he fails to do so[10]. Some platforms have their own way of controlling risk. Customers deposit some of their money on the platform before they actually borrow, and the platform freezes their assets if they fail to repay.

(2) Inconsistency between business process and product design

Because the investigation and analysis of the consumption habits and market demands of financial customers by commercial banks are not comprehensive enough, and there is little exploration of new businesses, when designing credit products and changing the procedures for business, commercial banks usually take into account the bank's own interests and risk management in the design of credit business procedures and products under the condition that the regulatory requirements are met, ignoring the experience of customers as well as the real and reasonable credit needs of customers, the designed products and operation procedures are relatively complicated, and there is a great gap between the business experience and product operation and the requirements of customers, thus affecting the external sales of products[11]**.** At present, the bank's lending business process and product design there are many inconsistencies. As a purely financial institution, the bank does not understand the use of credit business by consumers in the market, and the commercial bank does not know the specific use of funds. Due to these limitations and the ability of the commercial bank itself, the designed products often cannot meet the real needs of the customer's credit business. Because of the data support of shopping and financing platform, Internet finance can control the real use of customers' funds. Therefore, Internet finance can design financial products to meet customers' needs.

(3) Poor operational capacity of staff

Most of the business of a commercial bank is completed by its employees, but many of them are not really familiar with the business of the commercial bank, are not very familiar with the business process, can only carry out business operations, and can not fully understand the principle, and some employees are not satisfied with the customer in service attitude. This is because, on the one hand, due to the characteristics of the credit business, most commercial banks carry out standardized operations, which can be done according to the operating procedures, and it is not necessary to give full play to the initiative of the practitioners, as long as the banks can handle the business for the clients according to the procedures without making any mistake and pull the clients to promote the products; on the other hand, there is a common phenomenon in commercial banks that they do not pay much attention to the influence of individuals on the banks, which leads to the future career development, salary treatment and poor sense of identity of credit personnel, and a large number of personnel will be lost each year. These two reasons make the credit business lack a relatively professional and stable team [12]. What the commercial bank needs is compound talents, who can find out the insufficiency of the credit business of the commercial bank, strengthen the cooperation between the two sides, and at the same time, through analysis and investigation, can develop products that meet the needs of customers.

(4) Imperfect risk management

At present, the banks are still using the traditional methods in risk management, but in the process of credit business, the method of risk management can not fundamentally and effectively reduce the credit fund risk of commercial banks through guarantors' guarantee for the credit business of lenders, while the Internet finance uses the big data system to assess the credit and repayment ability of customers through the consumption and transaction behavior of customers, which is more efficient and objective, and can effectively reduce the risk of investors and improve the risk management level. In this new era of mobile Internet finance, people are living at an increasingly interconnected level, and it is easy to track a customer's social and credit status [13]. As for the risk management of credit business, commercial banks can not keep pace with the development of China's Internet financial market mainly through human resources operation, which is not conducive to the effective management, prevention and control of risks in credit business by large commercial banks.

5. COUNTERMEASURES OF COMMERCIAL BANKS BASED ON CREDIT BUSINES

(1) Changing the concept of guarantee and focusing on customers

In order to reduce the loss to the greatest extent, the traditional commercial banks regard the guarantee as the most important process of the credit business, so the commercial banks can also offset the guarantee to reduce the loss when the borrowers can not repay the loans. But in the background of Internet finance, the credit business still relies on the guarantee to restrict the development of the commercial banks. So the commercial banks should change the concept of risk management and change the concept of guarantee to credit. In the context of Internet finance, commercial banks can establish their own e-commerce platform, using big data technology in the collection of data, forecasting trends and other aspects of risk management. Compared with the Internet enterprises, the commercial banks have appeared earlier and the development process is longer, and in this process they have accumulated a large number of information resources and accumulated a lot of customers. Although the Internet enterprises have developed for a short time, they have also accumulated a large number of customer information resources through the data accumulation of transactions on many network platforms. Commercial banks shall strengthen the cooperation with the Internet enterprises in customer information resources, judge the credit status, consumption demand and repayment ability of customers through big data, and determine whether customers can make loans based on the analysis of data results. Commercial banks can use the analysis data to judge, which can not only improve the review efficiency of credit business, but also reduce the credit business risk of commercial banks [14].

(2) Reforming loan procedures and innovating financial products

In the context of Internet finance, in order to meet the needs of customers for the convenience of credit process, commercial banks should actively change the process of credit business, on credit business process, there are two suggestions. First, with the support of Internet technology, commercial banks shall make use of big data technology, combine with the traditional credit system of commercial banks, update the process of credit business, simplify the cumbersome and complicated steps as much as possible, simplify the customer credit standards through the selection of previous customers, and improve the efficiency of credit loans through actual data analysis. Second, commercial banks should actively use the Internet to effectively select the transaction data of customers, simplify the credit business process, improve service efficiency, and implement the all-day unlimited service strategy. Only by strengthening the core competitiveness of commercial banks' credit business, can commercial banks better maintain the status of commercial banks' credit business [16].

Commercial banks must change the direction of innovation. Traditional commercial banks should focus on products or banks. Under the background of Internet finance, commercial banks should first understand their customers and innovate their products. Commercial banks shall actively make use of various Internet technologies and platforms, and by understanding the actual needs of customers, take market innovation as the orientation, quantify and refine the market needs, look for opportunities from small details and seize the opportunities to seek a larger market space. In the process of exploring the market, firstly, we shall take the overall situation of the market into consideration and pay attention to the different needs of different types of customers so as to design and popularize the products; secondly, in the process of product innovation, we shall repeatedly deliberate the details of the same product, flexibly adapt to the needs of each credit customer, pay attention to the details, put the quality first, and attract customers by the high quality of the products; thirdly, because each customer will choose the products that are suitable for him, the market share of each product will be different. When carrying out product innovation, commercial banks shall first innovate the products with high market share, with customer satisfaction as the first factor [15].

(3) Cultivate compound talents of Internet finance and commercial banks

With the rapid development of internet finance in today's society, commercial banks must cultivate compound talents who have many kinds of technical experience. At the same time, through analysis and research, they can develop products that meet the needs of customers. Because the traditional commercial banks did not realize the importance of the information technology department, they invested too little funds and talents in the information technology department, which led to the lack of professional information talents and the difficulty in keeping up with the rapid development of information technology, and the inability to accurately grasp the customers' demands for credit products in a timely manner restricted the development of commercial banks [18].

Therefore, when recruiting new employees, commercial banks should widely absorb talents, strengthen the emphasis on compound talents, and recruit more talents with different majors at the undergraduate and graduate levels, so as to avoid the single knowledge structure of internal employees. As for the employees who have already been employed, they shall be provided with training of various knowledge on a regular basis, and be encouraged to obtain various technical qualification certificates so as to motivate them to learn constantly. On the basis of the employees' proficiency in banking business, they shall be encouraged to learn more knowledge related to internet technologies. It is also necessary to improve the treatment of composite personnel, avoid the loss of high-end talents, encourage them to carry out career planning in light of their actual conditions, create a good environment and space for their development, give them room for growth, and enhance the core competitiveness of high-end talents.

(4) Improving the credit system and strengthening risk management

In the era of Internet finance, the consumer behavior of customers can be expressed by a pile of data, which can be used to predict the credit degree and repayment ability of customers. In order to improve the credit system, a commercial bank shall do the following: firstly, ensure that the information provided by clients is authentic and reliable, make full use of the advantage of high customer trust, reduce the change elements in the operation process of the online platform, conduct strict verification, strengthen supervision, reduce operation risks and make clients trust. Second, we can use the data representing the characteristics of customer transactions to summarize the data from different consumption scenarios, and summarize the indicators suitable for judgment. Thirdly, a commercial bank may build a model to classify customers, rate each customer and carry out customer quota management at the same time, and then automate the processing of these indexes to realize the development of data on customer credit lines [19].

When strengthening the construction of its own network loan platform, commercial banks shall not only improve the bank credit system, but also strengthen the risk management of commercial banks. Commercial banks should, first of all, actively carry out risk management and establish a risk management model suitable for the Internet. This model can flexibly carry out all-round monitoring and analysis according to the situation of each client. This model can not only monitor the use, flow and backflow of the client's funds, but also promote the work of risk reduction and risk resolution in areas and products with high risk incidence [20].

6. CONCLUSION

This paper expounds the impact of the development of Internet finance on the credit business of commercial banks and the status quo of the development of the credit business of commercial banks. In order to promote the sustainable and healthy development of commercial banks in the context of Internet finance, to stabilize the main position of credit business, the corresponding solutions.

By analyzing the problems of commercial banks in terms of development philosophy, business process and products, skills of credit officers, credit investigation system and risk management, the following countermeasures are proposed for commercial banks in combination with theoretical and practical analysis: firstly, changing the development philosophy, no longer relying on the credit business based on guarantee, learning from the development direction of Internet financial enterprises, learning to make use of big data and other technologies to realize online credit business and meet the customers' needs for convenience and diversification of credit business; secondly, transforming the loan process and innovating financial products, establishing an innovation mechanism centered on customers, designing products according to the specific needs of each customer, making every effort to tailor-make such products tailor-made and using product quality to attract customers; thirdly, cultivating compound talents, constantly providing knowledge training, improving talent treatment, and cultivating an excellent compound talent team, attaching importance to their influence on commercial banks, and giving them space to develop; fourthly, commercial banks shall strengthen the construction of their own network loan platforms, and improve the credit reporting system of banks, and strengthen the risk management of commercial banks.

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Exploration of the Way of College Counselors' Ideological and Political Education in the Internet Era

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Abstract: In the internet age, the ideological and political education among Chinese universities has ushered in great opportunities and challenges. Due to the unevenness of information sources and quality in the complex and changeable network environment, college students are exposed to some harmful contents, which has an adverse impact on their healthy development. Although the Internet has brought some ill effects, it could integrate the existing resources of colleges and universities, change the traditional teaching mode and enrich the content of education. Therefore, the manuscript illustrated the positive influence of ideological and political education on college student, and determined the way of ideological and political education for university counselors in the Internet plus era.
Keywords: Internet; College counselors; Ideological and political education.

1. THE POSITIVE EFFECT ON EDUCATION OF IDEOLOGICAL AND POLITICAL IN UNIVERSITIVES IN THE INTERNET AGE

Although the development of the Internet has changed people's daily life, it has had a far-reaching effect on people's outlook on life, world outlook and values to a certain extent. In previous ideological and political education in colleges and universities, college counselors always transmitted the knowledge of Ideological and political education unilaterally. The way of education is not only relatively single, but also is difficult to arouse students' interest in learning. Therefore, college counselors should change the traditional way of work and take advantage of Internet by using WeChat, Twitter, QQ and TikTok, which are benefit to attract great attention of students in learning. Furthermore, college counselors should understand the students' ideological situation timely, strengthen the communication with students, improve the level of Ideological and political education constantly. In addition, keeping pace with the times and improving the ability of innovation are also important in education.

1.1 THE TRANSFORMATION IN TRADITIONAL MODE OF IDEOLOGICAL AND POLITICAL EDUCATION

In the era of Internet, it is urgent to transform the traditional mode of the ideological and political education to achieve better effects. The new era of rapid development of network, breaking the barriers of traditional information resources, make the content of Ideological and political education in higher vocational colleges tend to be diversified. Diversified network means become carrier, improve and enrich the content of Ideological and political education, such as micro-blog, WeChat, APP and cloud computing applications. In detail, college counselors could applicate multimedia equipment for online teaching, which brings much convenience to the ideological and political education in colleges and universities. Moreover, college counselors can carry out online ideological and political education, employ online classes to make students easier in learning ideological and political education knowledge, help students build correct three outlooks, and reduce the negative impact of Internet surfing on students. Increasing the the number of online courses could attract students interest and enrich the contents of Ideological and political education. Compared with the traditional teaching mode, online courses shows less limitation on time and location, which are more convenient for students' study [1]. The openness of the network provides a more convenient and diverse sharing platform. It has provided globalized information resources for ideological and political education. It provides more convenient opportunities for counselors to carry out ideological and political education.

1.2 THE IMPROVEMENT OF DIVERSE IDEOLOGICAL AND POLITICAL EDUCATION DEVELOPMENT

Under the background of Internet era, it is benefit to promote the diversified development of Ideological and political education contents. Unfortunately, the contents of traditional ideological and political education has many limitations. For example, counselors always teach students the knowledge dependent on the ideological and political education textbooks. The information on internet is more diversity, which could enrich the contents for college counselors' ideological and political education. When carrying out ideological and political education, counselors can integrate social hot news with education, illustrating the significance of ideological and political education through studying hot news. Combined the ideological and political education with life reality, which could enhance the acceptance of students in learning Ideological and political education. Furthermore, it is benefit to improve the level of counselors in teaching ideological and political education. Counselors should pay attention to whether they can be applied to ideological and political education when integrating educational information resources.[2]. Counselors can also learn about students' interests by investigating and planning their network activities, so that they can fit students' life and interest points, so as to enhance the effectiveness of network ideological and political education. For example, they can focus on current events and set up discussion boards on the network platform to encourage more students to participate. Publish their respective views and elaborate them, then conduct positive guidance according to public opinion, and infiltrate ideological and political education into the process of discussion; We can also carry out online competitions on Ideological and political knowledge, and reward the students who win the prize in the competition, so that students can receive ideological and political education in the competition; We can also use the network platform to set up interactive channels between teachers and students, let students communicate with teachers through online channels, and help students solve ideological confusion and psychological problems.

2. THE WAY OF COUNSELORS' IDEOLOGICAL AND POLITICAL EDUCATION FOR STUDENTS BASED ON INTERNET PLATFORM

2.1 IMPROVE TEACHER' INTERNET APPLICATION TECHNOLOGY LEVEL

Under the background of Internet plus times, college counselors are carrying out ideological and political education work, we should give full play to the role of Internet plus and facilitate the ideological and political education.College counselors should strengthen their Internet application level in order to strengthen the effect of Ideological and political education. For example, tiktok, micro-blog, WeChat circle and shaking voice platform are used to make it a network position for educating students' Ideological and political education. Learn Tencent QQ, wechat, chat software, etc. to make it a communication carrier, which is convenient for counselors to carry out various daily education and management affairs exchange, psychological counseling and information transmission. On the other hand, colleges and universities shall regularly arrange college counselors for Internet application training, counselors can systematically understand the application of the Internet and effectively carry out students' Ideological and political education.Some counselors in Colleges and universities are not proficient in the operation of computers and other equipment. Colleges and universities can bring the "belt and road" computer learning method, or let young counselors drive older counselors to learn computer application technology and jointly improve the level of computer application technology[3]. In the Internet age, Counselors should also improve their own network information quality and eliminate bad thoughts and behaviors, cultivate personal scientific information concept and consciousness, including insight and analysis ability of information, true and false situation, reliability of information source, value of information content, etc. they should select and classify some information and suggest and guide students how to choose and learn. In addition, they should quickly strengthen the personal knowledge structure, strengthen the study of pedagogy, management, psychology, law, mental health and student employment guidance planning, they should actively update new knowledge and new culture in various disciplines, understand the latest educational laws and trends, and participate in relevant scientific research and research. Constantly improve their comprehensive quality, apply new knowledge and new achievements to the actual teaching management, and effectively use the means of network media to improve the effectiveness of counselors' work.

2.2 CONSTRUCTION OF INTERNET PLUS COUNSELOR EXCHANGE PLATFORM

Under the background of Internet plus times, we should carry out ideological and political education among students, colleges and universities can establish an Internet plus counselor exchange platform to promote communication between counselors. The Internet plus counselor exchange platform can divide ideological and political education into several modules, including ideological and political education content, ideological and political education methods, ideological and political education resources, ideological and political education exchange. Realize the communication and interaction between counselors. The instructors can conduct online educational exchanges through online platforms such as working logs, teacher's heart language, safety education, record of group activities and practical political dynamic education. It can be accompanied by the silhouette of class activities, accompanied by text descriptions, feature highlights and other links displayed on the Internet to share with you, so that we can enhance mutual understanding, cultivate feelings and create a harmonious and harmonious campus atmosphere. Internet plus counselor exchange platform, can set up separate modules for students' ideological problems. This can ensure that the counselors will not ignore the ideological trend of students, through communicating with students, they can understand students' ideological trends and public opinion in a timely manner. For some students with psychological confusion, counselors can timely understand the situation and carry out corresponding psychological counseling. Take effective measures to nip in the bud, help them get out of the psychological shadow in time, form a healthy personality and put an end to other dangerous accidents.

2.3 UPDATE THE WORKING MODE OF IDEOLOGICAL AND POLITICAL EDUCATION

Update the way of Ideological and political education of college counselors, it can help students to receive ideological and political education more easily. Counselors can use computers and other equipment, information management for student files.Counselors can timely understand students' learning status and school activities. Information archives management can restrict students' behavior in school, improve students' awareness of autonomous learning, and improve students' bad habits and bad thoughts.

2.4 REDUCING INTERNET PLUS NEGATIVE EFFECTS

Although the network can provide convenience for counselors to carry out ideological and political education, however, a lot of negative information in the Internet is a problem that counselors can not ignore. Counselors should strengthen their understanding of students, analyze the topics that students are interested in, judge whether the students are concerned about whether the topic is non violent, bloody, false propaganda and so on. If students are concerned about bad information, counselors can contact the information publisher to delete the information, avoid bad information from having a great impact on students' thoughts. If counselors find that students have serious ideological problems, they should guide them in an appropriate way to promote students' healthy growth[4].

3.CONCLUSION

In conclusion, college counselors carry out students' Ideological Education, should make rational use of the Internet to improve the effectiveness of Ideological and political education for students. Train students to have the correct values. Counselors should be able to distinguish bad information on the Internet and take relevant measures to reduce the impact of bad information on students' thoughts.

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Research on the problems and Countermeasures of backbone training of College Students

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Abstract: The backbone of students is a more active group in Colleges and universities, the representative of excellent students in Colleges and universities, the backbone to realize college students' self-management, self-education and self-service, and an important part of the work team of Ideological and political education in Colleges and universities. The quality of students' backbone directly affects class construction, school spirit and study style. This paper analyzes the current situation and existing problems of college student backbone training, and actively explores the new mechanism of college student backbone training and the platform for student backbone growth.

Key words: Current situation analysis of student backbone; Existing problems; new training mechanism.

1.CURRENT SITUATION OF BACKBONE TRAINING OF COLLEGE STUDENTS

Under the infection of today's diversified culture, the backbone of college students not only includes the main student cadres of the student union and classes, but also includes the backbone of mass organizations, the backbone of scientific and technological innovation, student party members, the backbone of literature and art and the backbone of sports. College counselors have more classes and rely on these backbone groups to carry out their work. However, college counselors focus most of their energy on helping backward students. They believe that backward students have difficulties in learning and interpersonal communication. They are the people who need help most, ignoring the care and training of student cadres [1]. Most student cadres have high comprehensive quality and strong ability, and play the role of organizer, manager and helping other students. However, they will also encounter problems in their work. Some student cadres can't release the pressure in work and study because of their face. If the pressure accumulates, their own problems will be exposed, and finally they can't continue to serve as student cadres; Some student cadres put most of their energy on their work, ignored their own study, and their academic achievements fell all the way; Some student cadres have outdated working methods and low work efficiency; This series of problems need the guidance and help of student staff [2].

With the popularization of higher education and the advent of the information age, it is urgent to strengthen the backbone training of college students. In order to further enhance the effect of the three self model of "self-education, self-management and self-service", improve students' work efficiency, innovate students' bone stem training model and actively explore students' backbone training platform has important practical significance.

2.PROBLEMS EXISTING IN THE BACKBONE OF COLLEGE STUDENTS

2.1 THE BACKBONE OF STUDENTS IS INACCURATE IN THEIR POSITIONING

The student backbone is a student team that helps counselors deal with class affairs, organizes class activities, serves students, and leads class students to study hard and make progress. The first identity of student backbone is a college student. First, it is the participant of class activities. It should complete the basic tasks as ordinary students, and then it is the organizer and server of class affairs. We should not only have certain learning ability and organization and management ability, but also have good interpersonal relationship and class prestige. Some backbone students can't recognize their job responsibilities, put all their energy on their own affairs, and care less about their work; Part of the students' backbone brought the role of student backbone into communication with the students, so that the students had opinions on him and did not recognize their identity as an ordinary student first; Some backbone students only pay attention to work and don't care about their own learning. They don't realize that learning is the most basic task of a college student. First, they should do a good job as a student, followed by work, which is also caused by inaccurate positioning of themselves.

2.2 IMPURE WORK MOTIVATION AND LACK OF DEDICATION

Influenced by Western hedonism, money worship and the current bad social atmosphere, some backbone students have impure work motivation and lack of service consciousness. Some students just start from their personal needs and think that when the backbone of students can gain benefits in joining the party, evaluating excellent students, winning awards, employment and so on, their motivation to serve as the backbone of students is not correct. Some students serve as the backbone of college students in order to meet their desire for power and sense of superiority. They love to show off, have high eyes and low hands, be submissive in front of teachers and arrogant in front of students, resulting in their lack of appeal among students. Others are eager for quick success and instant benefit, haggle over every detail, talk about conditions in work, reap benefits in activities, pick and choose, fear difficulties, and lack the character of hard struggle and hard work.

2.3 THE TRAINING MECHANISM IS NOT PERFECT AND THE FRUSTRATION ABILITY IS POOR

At present, the backbone of college students are all the "post-90s" generation. They have superior living conditions, less hardship, less participation in social practice and immature mind. They have many contacts with the Internet, are good at online communication, lack face-to-face communication experience and lack interpersonal skills. Some backbone college students are mentally fragile, have poor frustration ability, do not have mature psychological quality and bearing ability, and lack the exercise of encountering difficulties and setbacks. Once there are problems in study and life, they will lose their minds and lose self-confidence, resulting in all kinds of unhealthy psychological problems. Some college students' backbone work mode is simple and rigid, and can not put forward targeted solutions according to the new situation in time.

2.4 UNABLE TO CORRECTLY HANDLE THE RELATIONSHIP BETWEEN LEARNING AND WORK

The most important task of college students is learning, but some student cadres think that training their organizational and management ability at the university stage is more important than learning. Even some students think that the knowledge in textbooks is of little use in the future. They think that "EQ is more important than IQ" and "students who study well work for those who study poorly", ignoring the most basic task of College Students - learning, Focus all your energy on work and activities, and can't deal with the relationship between study and work.

2.5 WEAK SENSE OF WORK INNOVATION

A large part of the backbone students are enthusiastic at the beginning of their work. After working for a period of time, they begin to feel slack. They work step by step according to the working methods of the previous student cadre, and are only satisfied with no mistakes. There are two main reasons why students' backbone innovation consciousness is not strong: first, the incentive mechanism of students' backbone is not perfect, and the results of innovation and non innovation are the same; Second, the teachers assigned work and current affairs in no detail, leaving them no room for innovation. The backbone students are used to completing instructions without innovation.

3.IMPROVE THE TRAINING MECHANISM OF COLLEGE STUDENTS' BACKBONE AND GUIDE THE HEALTHY GROWTH OF COLLEGE STUDENTS' BACKBONE

3.1 STRENGTHEN IDEAL AND BELIEF EDUCATION AND CULTIVATE STUDENTS' BACKBONE AND DEDICATION

Under the new situation, to strengthen the ideal and belief education of college students, we should arm the youth with the latest achievements of the Sinicization of Marxism and strengthen theoretical cultivation. By inviting relevant experts and scholars to hold special lectures and organizing excellent student backbone exchange meetings, we can help them position themselves, clarify the responsibilities and tasks of student backbone, and cultivate their dedication to serving the school and students.

3.2 ESTABLISH AN ANTI FRUSTRATION EDUCATION MECHANISM TO IMPROVE THE ANTI FRUSTRATION ABILITY OF STUDENTS

Organizational behavior believes that frustration is a state of anxiety or a sense of failure in which individuals take certain actions to meet certain needs and encounter difficulties or obstacles, resulting in some or all of their needs and motives not being met. According to the theory of educational organizational behavior, in the process of building the backbone team of college students, the causes of frustration can be divided into internal and external causes. The internal reasons are mainly the physiological and psychological factors of the backbone of college students, and the external reasons are mainly school, family and social factors. Campus cultural environment is an important aspect affecting the psychological development of students. Colleges and universities should create a comfortable learning and working environment for college students by using College Students' mental health center, campus radio and billboards; For different types of student backbone, help them formulate different career plans and guide their physical and mental health development.

3.3 ESTABLISH AN INCENTIVE MECHANISM TO GIVE FULL PLAY TO THE MAXIMUM POTENTIAL OF STUDENT BACKBONE

Management psychology regards motivation as a "psychological process of continuously stimulating motivation". Incentive theories are mainly divided into two categories: content-based incentive theory and process-based incentive theory. The content-based incentive theory mainly studies the reasons, influencing factors and the content of potential incentive. Process motivation theory mainly focuses on motivation formation, goal selection, behavior occurrence, incentive effectiveness and other incentive processes. For the backbone of college students, it is mainly carried out through process incentive. Through self motivation, help students establish self-confidence; Stimulate their enthusiasm for work and learning through goal motivation; Through participation incentive, let the backbone students participate in the major affairs of the school and college, and improve their self-identity[3].

3.4 TAKE THE SECOND CLASSROOM AS THE CARRIER TO CREATE A NEW PLATFORM FOR CULTIVATING STUDENTS' BACKBONE

The second classroom has the characteristics of autonomy and diversity. It can organically combine quality, ability and knowledge. It is an effective way of Ideological and political education in Colleges and universities, mainly including professional practice, innovation and entrepreneurship practice, voluntary service and workplace experience. Colleges and universities can use the winter and summer vacation to carry out various practical activities such as student backbone going to enterprises or villages and towns, "Challenge Cup" science and technology competition, so as to improve the comprehensive quality of student backbone.

3.5 ESTABLISH A SOUND MECHANISM FOR THE SELECTION, TRAINING, ASSESSMENT AND SUPERVISION OF STUDENT BACKBONE

The selection of student backbone should follow the principle of "fairness, impartiality and openness", and formulate a perfect student backbone self-management system. After the selection and allocation of student cadres, they need to be trained, such as strengthening the psychological quality of student backbone through group psychological counseling; Cultivate students' working ability through Youth League school training; Guide them to reasonably arrange their work and study time, and make sure that their study and work are correct. Improve the student backbone assessment system, regularly assess student cadres, and adjust those who fail in time, but they need to do a good job in psychological counseling. Strengthen the supervision of student backbone. Counselors and ordinary students play the role of supervision at the same time to supervise the behavior of student backbone and the fairness and correctness of work.

4. SUMMARY

College student workers should adhere to the principle of being responsible for the backbone of students, adopt the combination of unified training and classified guidance, track and guide their development at each stage, and ensure their healthy growth. Adhere to "people-oriented", constantly explore and innovate in the training mode, and strive to build a backbone team of students with firm politics, excellent style and comprehensive quality.

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A Novel Industrial Robot Grasping Method Based on Binocular Vision

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Abstract: This paper studies the use of binocular vision technology to the grasping accuracy of industrial robots. A vision-based trajectory planning method is proposed, which corrects the trajectory based on visual information feedback, improves the accuracy of industrial robots, simplifies the control method. The test results show that the use of binocular vision technology can make the industrial robot more flexible and accurate to complete the grasping operation, with an accuracy of 95.6%.
Keywords: Binocular Vision; Industrial Robot; Intelligent Grasping.

1.INTRODUCTION

Due to the wide application of industrial robot technology in the production and manufacturing fields, more and more industrial robots replace manual labor to classify materials on the production line[1-3]. This dissertation takes the automatic grasping of industrial robots as the research background, and conducts in-depth research on key issues such as trajectory planning and grasping detection involved in grasping operations. The application of machine vision and multi-sensor data fusion technology in industrial robot grasping is discussed, and a grasping detection method based on candidate regions and a trajectory planning method suitable for multi-sensor data fusion control are proposed and applied. In the grasping of electronic components, good experimental results have been achieved. The detection method based on the candidate area grabbing comprehensively uses machine vision and multi-sensor data fusion technology. Among them, the machine vision system completes the image acquisition of the scene and the target, and the multi-sensor data fusion judges whether the current position can be successfully grabbed. The trajectory planning method based on machine vision relies on the machine vision system to feedback the pose of the end gripper of the industrial robot, and then completes the correction and compensation of the trajectory according to the feedback information and the kinematic model, so as to improve the accuracy of the end effector. The visual dynamic trajectory planning method is the technical basis for using multi-sensor data fusion to control the motion of industrial robots, and has good theoretical and practical significance. Because industrial robots involve a wide variety of disciplines, which integrate many technologies in the fields of mechanics, electronics, control, optics, and computers, this paper only focuses on the trajectory planning related to industrial robots grasping, target recognition, and grasping judgment. Research and introduce multi-sensor data fusion technology to help solve these problems, in order to achieve fast and accurate capture of target objects in complex scenes.

2. ROBOTIC TARGET GRASPING MOTION BASED ON BINOCULAR VISION

The object recognition and capture system of robot based on binocular vision is shown in Figure 1. Image acquisition card is to store the acquired image signal in computer. The clamping device module is installed at the end of the robot to achieve the clamping of the target object.

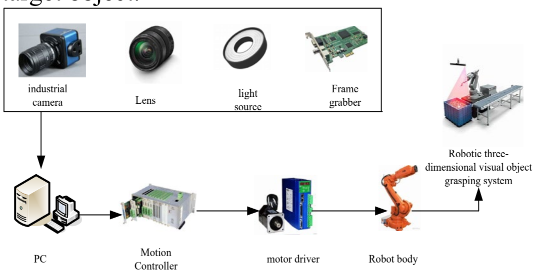

Figure 1. Robot target recognition, positioning and grasping syste

With the improvement of the level of automation [4] and the development of the intelligent manufacturing industry, robots are increasingly used in various fields of production and life, and the robot's grasping of objects is also its most basic and important function. The result of visual processing is passed to the robot through hand-eye calibration, and the robot is driven to move to the position of the target object through kinematic modeling and trajectory planning of the robot, and the grasping device is triggered to realize the grasping of the target object [5].

Figure 2. Positioning accuracy verification experiment

The method used in this paper is that the claws at the end of the robot grab objects and move them to different postures. The experiment process is shown in Figure 2, and 10 sets of images are collected. The experimental task is to identify, locate and capture multiple objects in the scene. According to the end pose of the robot, the joint angle is calculated backward to trigger the claw to grasp the target. And through the motion planning of the robot, the objects are transported to the designated area for stacking. The results of target recognition and positioning are shown in Figure 2. The results show that the positioning accuracy recognition and positioning algorithm of the binocular vision system constructed in this paper can meet the requirements of actual use, and realize the accurate recognition and positioning of target objects and robot grasping.The experimental results are shown in Table1.

Table 1. Theoretical position, actual position and position error

Number of experimental groups	Theoretical position(X, Y, Z) / mm	Actual location(X, Y, Z) / mm	Position error / mm
1	(536.6, -14.3, 103.9)	(539.9, -10.9, 109.0)	6.96
2	(522.9, -22.8, 57.1)	(519.2, -26.3, 52.4)	6.93
3	(534.2, 5.5, 99.6)	(537.6, 8.2, 106.0)	7.73
4	(543.7, 24.0, 113.7)	(548.2, 26.4, 107.5)	8.03
5	(496.9, -19.5, 60.5)	(492.7, -17.9, 63.7)	5.52
6	(497.5, -17.1, 59.8)	(493.4, -13.9, 53.4)	8.25
7	(511.9, 57.5, 66.5)	(516.3, 60.2, 62.2)	6.72
8	(488.0, -10.9, 5.2)	(485.4, -12.3, 9.1)	4.89
9	(524.8, -10.5, 73.9)	(520.2, -14.4, 70.7)	6.83
10	(524.1, 33.6, 74.1)	(527.5, 35.3, 79.0)	6.20

3. Conclusions

This paper studies the use of binocular vision technology to the grasping accuracy of industrial robots. A vision-based trajectory planning method is proposed, which corrects the trajectory based on visual information feedback, improves the accuracy of industrial robots, simplifies the control method. The test results show that the use of binocular vision technology can make the industrial robot more flexible and accurate to complete the grasping operation

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The Analysis of Optimization and Development Trend in Mobile Communication Network

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Abstract: Network optimization is always used to solve two problems: First of all, improve the coverage and the quality of the communication network. Secondly, improve the efficiency of the communication network and reduce expenses. China is the country with the fastest development of mobile communications in the world. Thanks to the continuous efforts of the three major operators, the networks of the three companies have been effectively optimized and upgraded, which effectively improved the quality of the mobile network. In the article, we introduce the development status of optimization in mobile communication network at first, then we analyze the significance and strategies of optimization, and finally explain the development trend of optimization.
Keywords: Mobile communication; Optimization; Development trend.

1. THE DEVELOPMENT STATUS OF OPTIMIZATION IN MOBILE COMMUNICATION NETWORK

1.1 THE OPTIMIZATION AND DEVELOPMENT STATUS OF FOREIGN MOBILE COMMUNICATION NETWORK

The optimization of mobile communication network in foreign countries started earlier, especially in the United States and the European Union. After the construction of the mobile communication network was completed, the later work they should do was network maintenance and optimization. Because the main energy of operators is focused on market development and business expansion, operators in Europe and the United States have outsourced the network optimization work to specialized third-party network optimization companies. At the same time, with the rapid development of the communication industry, the number of customers using mobile phones increased dramatically, and the pressure on mobile communication network also increased dramatically. It led to the continuous requirements of network optimization, and ultimately promoting the continuous development of optimization business. According to data from CommScope company, the market scale of global mobile communication network optimization was only 6.595 billion U.S. dollars in 2006, and reached to 16.254 billion U.S. dollars in 2017.[1]

1.2 THE OPTIMIZATION AND DEVELOPMENT STATUS OF MOBILE COMMUNICATION NETWORK IN CHINA

The optimization of mobile communication network started later in china, but the market scale was large and it developed rapidly. According to the date published by the Ministry of Industry and Information Technology, by the end of December 2019, the mobile network coverage had extended to a deeper level. The total number of 4G users reached to 1.28 billion, and the net increase was 117 million in the year, accounting for 80.1% of the total number of mobile phone users. With the advent of the 5G era, the 5G network will cover the whole country.At least 1 million signal transmission base stations need to be built, and the market scale of mobile communication network optimization is estimated to reach tens of billions.[2]

2. THE SIGNIFICANCE AND STRATEGIES OF OPTIMIZATION IN MOBILE COMMUNICATION NETWORK

After continuous efforts and innovation, Mobile communication network in china became the one with the widest coverage and the largest number of users in the world in recent years, mainly including GSM and CDMA networks. Since China join in the World Economic and Trade Organization, Operators have put forward high requirements for the quality of communication networks. We believe that the significance and strategies of communication network optimization are as follows.

2.1 SIGNIFICANCE OF OPTIMIZATION IN COMMUNICATION NETWORK

The main purpose of network optimization is to improve the network quality continuously. For example, The development of wireless network is to continuously improve the voice quality of wireless network, to promote the establishment of high-speed signal connection channels between base stations and users' mobile phones, and to improve the Quality of Service. The mobile communication network has the characteristics of large number of customers, unstable frequency and heavy traffic, which leads to unstable signal connection between base stations and users in some areas, seriously affecting the network quality and call quality of users. For example, if the signal connection is unstable, the mobile phone cannot connect to the network normally, there is obvious noise during the call, and the voice of the call is relatively. These problems seriously affect the feeling of users, and will also have a greater impact on the reputation of mobile communications. As far as the current situation is concerned, the quality of mobile communication directly affects the investment efficiency of operators. In order to meet the increasing communication requirements of people, it is necessary to establish and improve the relevant operation mechanism and management mechanism of mobile communication network according to the actual situation to ensure that users can use it normally. At the same time, it is necessary to increase the construction efforts in remote areas and constantly update the network technology according to the current development trend.[3]

2.2 STRATEGIES OF OPTIMIZATION IN COMMUNICATION NETWORK

The network optimization can improve the quality and performance of network. It mainly includes hardware optimization and software optimization. The hardware optimization mainly involves the optimization and improvement of equipment performance, the software optimization mainly improves the performance of the network by adjusting network parameters. The optimization strategy mainly includes three points, as follows: Parameter optimization of base station.When optimizing the wireless network, it is necessary to optimize the hardware of the base station according to the operational requirements, such as the direction and specific angle of the antenna. We should properly adjust the channel and coupler frequency according to the actual situation, and regularly adjust the frequency and wavelength of regional signal coverage to ensure the normal operation of hardware equipment. Data collection and analysis is the premise of network optimization. Data collection includes traffic data collection and drive test data collection. The main indicators to evaluate network performance include network access performance data, channel availability, call drop rate, call completion rate, congestion rate, traffic, handover success rate and traffic report charts, which are also the focus of traffic data collection. The acquisition of drive test data is mainly through the drive test equipment to qualitatively, quantitatively and positionally measure the coverage switching and quality status of the network wireless downlink. Through the geographical survey of wireless resources, the difference between the network status and the planning is confirmed, and the network interference, blind areas, dropped calls and switching failure areas are found out. Then, analyze the data collected by the drive test, such as the geographical location information of the test route, the location of each base station in the test route area and the distance between base stations, the field intensity distribution of each frequency point, the coverage, the level and quality of the received signal, the status of six adjacent cells, the handover situation and the decoding data of Layer3 message, and find out the problem, so as to solve the problem. Secondly, the coverage of wireless network base stations. The base station will realize the regional coverage of the signal according to the distribution of the surrounding residents. In its effective coverage area, the signal can meet the corresponding service standards and meet the users' requirements. However, as far as the actual situation is concerned, the coverage of base stations in cities is better, while that in Countryside areas is worse. We must vigorously improve coverage in rural areas and prevent duplication of coverage. Finally, in wireless network planning, it is difficult to take into account the situation of each user, and there will be different levels in the configuration and use of equipment. Therefore, it is necessary to establish a corresponding model according to the actual situation, predict the traffic of the base station, and make appropriate adjustments according to the data to balance the traffic. Traffic balancing refers to the phenomenon that the carrier frequency of each cell should be fully utilized to avoid congestion in some cells and no traffic in other cells. Traffic balancing can reduce the congestion rate, improve the call completion rate, reduce the call drop caused by uneven traffic, and further improve the quality of communication. The positioning means of traffic balancing problem include traffic measurement data, traffic volume, call completion rate, congestion rate, call drop rate, handover success rate, drive test and user reflection. The traffic imbalance is mainly manifested in the following aspects: the height of the base station antenna, the elevation angle and the transmission power are set unreasonably, and the coverage of the cell is large, resulting in an imbalance with the base stations; due to geographical reasons, the cell is located in a commercial center or a busy area, and there are many mobile phone users, resulting in a high traffic of the cell relative to other cells; Cell parameters, such as traffic imbalance caused by unreasonable setting of the minimum level of access allowed and so on. What should we do?

The first method : Change the downtilt angle and hanging height of the directional antenna, or adjust the corresponding cell parameters such as the transmission power of the base station, or change the size of the coverage area to achieve the purpose of adjusting the traffic volume. For the increase in the temporary traffic volume, we can Change the signal coverage by temporarily increasing the carrier frequency or increasing the transmission power.

The second method: Changing the number of carrier frequencies in a cell is one of the common methods for traffic adjustment. The carrier frequency is adjusted from the cell with low traffic volume to the cell with high traffic volume. The OVERLAY/UNDERLAY hierarchical cell structure or the addition of microcell base stations are adopted to reduce the traffic volume per channel.

The third method: Check the minimum level value ACCMIN allowed to access, and adjust the traffic volume indirectly by the change of cell coverage. Adjusting the value too large may cause blind spots, and too small may cause call quality degradation.

The fourth method: Dual-frequency network traffic adjustment, adopts hierarchical cell structure on GSM900 and GSM1800 systems. We should consider the cell layer, priority, inter-layer handover threshold, inter-layer handover hysteresis and other parameter settings, make users can access to GSM1800 system successfully.

3. THE DEVELOPMENT TREND OF OPTIMIZATION IN MOBILE COMMUNICATION NETWORK

Communication technology is developing rapidly in China, but there are also many problems. We believe that the development trend of optimization in mobile communication network should include three aspects as follows.

3.1 DEVELOPMENT OF AN INTEGRATED SYSTEM

In mobile communication network optimization area, we will use many different technologies and tools. If the technicians can't effectively integrate technologies and tools, it will affect the optimization of mobile communication networks. Therefore, suppliers and operators in the system must establish a stable cooperative relationship, establish an integrated operation system, and link data analysis and environmental testing closely. The integrated operation system can ensure that data processing and analysis are more convenient, thus promoting the realization of optimization in mobile communication network.

3.2 DEVELOPMENT OF AUXILIARY MINING SYSTEM

In the whole optimization process, data analysis is the most difficult part, because the communication system will produce a large amount of data in the process of operation, which requires a variety of technologies to achieve data processing. Therefore, in the future development trend, it is necessary to develop an intelligent auxiliary data mining system to help the relevant technical personnel to grasp the relationship between the various data in the system in the shortest time, in order to put forward an effective rectification plan to promote the stability of the mobile communication network.

3.3 DEVELOPMENT OF AN AUTOMATED ADJUSTMENT SYSTEM

If an auxiliary system is added to the mobile communication network, it can enhance the efficiency of data analysis and the accuracy of data analysis and processing. On this basis, if we want to further optimize the mobile communication network, we need to develop a system that can automatically adjust parameters according to the actual situation, in order to ensure the overall automation level of the system. At the same time, we need to optimize the OMC system. The configuration function of the system is enhanced, so that the system can automatically adjust various parameters according to the actual situation in the process of operation.

4.CONCLUSIONS

To sum up, through the analysis of this paper, the communication network is a dynamic network, the load of the network is constantly changing in the process of operation. It requires operators to constantly adjust the network parameters according to the actual situation, and constantly optimize the network, so as to promote the stable development of the mobile communication network industry.

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A comparative study of Vocational education systems in China and England

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Abstract: This article in view of the current situation of the development of vocational education of both Chinese and English, under the vocational education system structure of both Chinese and English, from the teaching idea, training mode, teaching method, curriculum setting, professional certificate acquisition, learning objectives, evaluation and results described, describe the seven aspects such as comparative analysis, analysis of their advantages, learn from each other, learn from each other, To promote the high-quality development of vocational education in China and the UK.
Keywords: Vocational education; Cultivation mode; Comparison and analysis.

1. INTRODUCTION

Under the background of the new era, China's vocational education, as an education type parallel with general education, has been determined to achieve high-quality development of vocational education. On the basis of studying and analyzing the experience of foreign developed countries, China's vocational education scholars have carried out active exploration and practice and achieved a series of good results. In the study of British vocational education system, it is found that the social form, political system, cultural tradition and even management mode of Britain have many similarities and similarities with China. In view of this, this paper compares the Chinese and English vocational education systems from the aspects of teaching philosophy, training mode, teaching methods, curriculum setting, obtaining vocational certificates, description of learning objectives and achievements, assessment and evaluation.[1]

2. COMPARISON OF CULTIVATION MODES

China: talent cultivation adheres to the principle of "industry-education integration, school-enterprise cooperation". In the transition from subject-based mode to competency-based mode, diversified development trends such as order-based and modern apprenticeship system are presented. The system of academic education has been transformed into a double certificate system, which is based on the post ability training of enterprises, serves the needs of the industry, ADAPTS to the regional economic development, and constantly improves the adaptability of vocational education.

UK: Talent cultivation adheres to vocational orientation and focuses on cultivating students' "key competence" and "core competence" (i.e. the vocational ability to adapt and migrate in market changes). [2]It mainly adopts the "sandwich" mode of work-study alternation and modern apprenticeship, which integrates vocational education with technical training to cultivate students' practical work and practical ability. The curriculum is designed around the needs of the market and enterprises, and the curriculum or major is dynamically adjusted according to the social development and changes, so as to ensure that students adapt to the changes of society, economy and market.

3. COMPARISON OF TEACHING CONCEPTS

China: emphasis on knowledge reserve and accumulation of technical skills. Starting from the cognitive law of learners, it emphasizes the basic knowledge and basic skill reserve of professional fields, pays attention to the accumulation of technical skills of students, meets the needs of students' ability development, and lays a good foundation for students' future employment and study.

UK: Focus on core skills and vocational ability training. The British vocational education carries out the national vocational qualification system (NVQ/GNVQ), which focuses on the cultivation of core competence, grading by post and cultivating students' employability. Learners can take the corresponding international vocational qualification examination after reaching the corresponding post ability. After obtaining the corresponding qualification certificate, you can obtain employment in the corresponding post. [3]

4. COMPARISON OF TEACHING METHODS

China: take the student as the center, real virtual integration teaching, action-oriented teaching, project teaching, scene teaching, hybrid and reached consensus on the teaching and learning between teachers and students, the professional quality and learning ability throughout the whole process of talent training, promote student role gradually shift to employees, and promote students' sustainable development ability.

UK: the concept of "student-centered, competence-oriented", teaching activities and curriculum design are designed around the training and improvement of students' application ability for the purpose of teaching. Teachers train and improve students' ability to find, analyze and solve problems through group party activities, role playing, simulation, case analysis, research-based learning, narration, discussion and self-study. Students are the main body of participation, while teachers are organizers, guiders, coordinators and promoters. [4]

5. COMPARISON OF ABILITY UNITS/COURSE STANDARD SETTINGS

China: Curriculum standards are set under the guidance of professional teaching standards. According to the professional teaching standards issued by the state, the corresponding professional courses are set up, and the corresponding curriculum standards are formulated with the curriculum as the basic unit to specify the curriculum nature, curriculum objectives, content objectives and implementation suggestions of a certain discipline (major).

UK: Focus on the syllabus and set up units of competence. The syllabus for different levels of British vocational education (similar to Chinese majors) contains different numbers of units (similar to Chinese subjects), including the overall teaching purpose, teaching requirements, teaching content catalogue, teaching depth and hours allocation of the course. Some also include references, teaching instruments, visual AIDS and other tips. The breadth and depth of teaching content in the syllabus are the minimum standards that students must meet.

The structure of each unit (subject) contains the following elements: unit name, class number, unit description (on the content and students' ability to force), learning outcomes (students must meet the requirements), table of contents (to master the specific content and skills are needed for each learning outcome), the basic evaluation criteria, teaching guide, evaluate and reference. From the point of view of unit (course) structure setting, learning outcome plays a leading role, which is the basic standard basis of student skills requirements and evaluation to be achieved by the unit, as well as the target of assessment. The progress of each unit (course) is based on the learning outcome, which is the leading and core of the teaching progress.

6. COMPARISON OF OBTAINING ACADEMIC CERTIFICATES/VOCATIONAL QUALIFICATIONS

China: Vocational education and general education are in parallel. Higher vocational education adopts the dual certificate system of academic degree certificate and vocational skill grade certificate (vocational qualification certificate). Students generally complete the required academic year and obtain the corresponding credits before they can obtain the academic certificate. Students can obtain corresponding vocational certificates according to the setting of professional courses. Take electrical automation technology as an example, students can only obtain a diploma after completing a 3-year course and meeting graduation requirements. Students in 3 years (mainly in the 2nd to 3rd year) can obtain maintenance electrician, programmable control system application programming and other vocational qualifications.

UK: In the early 1990s, the UK's higher vocational education changed from a dual track system to a single track system.

The state promotes the vocational qualification certificate system to highlight the practical operation ability in accordance with the knowledge and skills needed by enterprises in production. The state has formulated the NVQ standard of 5-level national vocational qualification certificate, which is upgraded from low-level to high-level. Ability to cultivate successively, after reaching a stage of ability goals, you can obtain the corresponding qualification certificate. It stipulates that students who receive vocational education can directly enter institutions of higher learning after reaching tertiary level.

Each level of vocational qualification corresponds to the diploma and certificate of academic education. In Britain vocational education is open to anyone over the age of 14. It is a lifelong process. Many college graduates go to vocational schools to train their skills, and graduates from vocational schools can also go to university for further study. They can flexibly "shuttle" between vocational education and higher education according to their own needs.

7. DESCRIPTION AND COMPARISON OF PROFESSIONAL LEARNING OBJECTIVES/COURSE LEARNING OBJECTIVES

China: The description of the professional learning objectives from the students' graduation standards, vocational certificate acquisition, path to study, employment and other aspects of a general description.

UK: The description content is itemized and standardized to express the knowledge and skills that students should acquire before the end of the major as well as the application of knowledge and skills. Distinction Grade Descriptors: Pass Grade /Merit Grade /Distinction Grade description.

8. COMPARISON OF ASSESSMENT METHODS

China: pay attention to the comprehensive evaluation of process assessment. In the professional talent training program, students are required to have good physical and mental quality, humanistic quality, good living habits, behavior habits and self-management ability. The assessment of students' quality is generally carried out by asking questions in class, doing homework after class, attending class and practicing discipline, which can promote the attainment of students' training objectives. For example, the course integrating theory and practice adopts the method of process assessment + final assessment, which accounts for 30% and 70% respectively. The process assessment generally adopts the methods of classroom questioning, homework, attendance and practice discipline, etc. The final assessment adopts the form of final paper + big homework or completing comprehensive practical work tasks. The final paper will set some subjective and objective questions, including filling in the blank, choice, judgment, short answer, discussion, etc. It mainly inspects students' mastery of theoretical knowledge and critical thinking ability.

UK: Formative assessment based on learning outcomes. Take THE MODEL assessment and evaluation system of BTEC (Business and Technical Education Council - the largest examination and certification body in the UK) as an example:

(1) Assessment is based on evidence and based on

results. Assessment of students' learning outcomes. Based on the actual results achieved by students in the learning process as the standard.

(2) The assessment method is based on schoolwork and a variety of forms are used. Take schoolwork as the most important form. According to the characteristics of different majors, supplemented by other assessment methods, such as "coursework + notes", "coursework + case analysis", "coursework + oral examination" and so on.

(3) Grade based on results and attach importance to data accumulation. In the form of schoolwork, students are provided with the opportunity to show their ability in the activities, and the results are mainly displayed in the process of completing the schoolwork. A course of study consists of one or a series of tasks with a practical background. Each course stipulates that students must exercise and demonstrate the content of general ability, generally should achieve3-5results, and the grades of the course learning are ultimately determined by the results.

9. CONCLUSIONS

This paper makes a comparative analysis of the vocational education systems in China and Britain from seven aspects, including teaching philosophy, training mode, teaching methods, curriculum setting, obtaining of vocational certificates, description of learning objectives and achievements, and description of assessment and evaluation, to provide a basis for the study of vocational education and to promote the high-quality development of vocational education in China and Britain.

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How should College Counselors Cultivate New Youth

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Abstract: When the youth is prosperous, the country is prosperous, and when the youth is strong, the country is strong. Striving for the Realization of the Chinese dream of the great rejuvenation of the Chinese nation is the theme of the contemporary Chinese Youth Movement. As a college counselor, he is a practitioner of youth work and also the first responsible person. To study, publicize and implement youth work should be the primary political task for our counselors at present.
Keywords: College counselors; Cultivate; New youth.

1.INTRODUCTION

Ideological and political work in colleges and universities is fundamentally the work of human beings, and college teachers must focus on students, care for students and serve students. In colleges and universities, in addition to the study of subject knowledge, students are closely linked with a variety of campus cultural activities. Therefore, if we want to do well in youth ideological and political work of college students, college counselor is a member of a college teachers should make full use of the nature and characteristics of their own to carry out many types of cultural activities, to improve student participation and enthusiasm and promote the actual effect of ideological and political work and attractive.

At present, the main social contradiction in China has been transformed into the contradiction between the people's growing needs for a better life and unbalanced and insufficient development. The needs of young people for a better life represent the trend of social development to a certain extent. In terms of survival, young people are not satisfied with having enough to eat, and they are more concerned about eating well; Not satisfied with wearing warm clothes, but more concerned about wearing beautiful clothes, brand consumption has become its normalized mentality.

In terms of development, the pursuit of success is the choice of most people. The rich and colorful life opportunities brought by social prosperity and development provide diversified choices for youth career planning. The multi-dimensional development path of innovation and entrepreneurship and leading the line has been recognized by most young people.In terms of enjoyment, it is common to pay attention to realistic life and work enjoyment. In the face of unbalanced and inadequate development, young people can also make basic judgments and choices from international comparisons. Their life choices are moving in the same direction as the general trend of national development.

The cultivation of contemporary college students needs to go beyond the intergenerational vision, follow the historical logic and realistic logic, and organically unify the two. From the perspective of historical logic, young people have always been the main body of history and bear the responsibility of promoting social progress. The judgment that "tomorrow belongs to young people" is inevitable. From the perspective of practical logic, people are the product of the environment, and the judgment of contemporary youth comes from the judgment of the environment. In the final analysis, the ideological status of youth is the product of environmental influence, which is rooted in the environment itself. The above three statements of money worship, exquisite egoism and sensationalism only locate the conclusion on the contemporary young people, rather than analyze it from the objective process of environmental change, so they have limitations.

2.HOW SHOULD COLLEGE COUNSELORS CULTIVATE NEW YOUTH

The ideological and political work of college counselors should closely follow the melody of The Times, organize and guide students in multiple forms, channels and carriers, focus on cultivating and practicing socialist core values, and actively guide young people to establish a correct sense.

2.1 LEAD STUDENTS TO FOCUS ON IDEOLOGICAL AND POLITICAL EDUCATION

Condense the theme of The Times and establish characteristic activities. [1] With thematic education activities as the starting point, closely follow the melody of The Times to carry out characteristic theme activities. We can use major festivals, historical events anniversary as an opportunity. We can stimulate students' national pride and patriotic feelings and lead them to love the country and their school. We will promote the cultivation and practice of core socialist values. We can focus on the ideological trends of students in the new era, actively guide young people to combine their youth dreams with the Chinese dream, actively assume their due responsibilities and missions. Gather the power of example and create an advanced model. We can give full play to the role of alumni, and actively require outstanding graduates to return to their Alma mater to share their experience. So that students can feel the power of the discipline more intuitively, clarify the direction of the future, and stimulate their will to struggle. We can do regular selection and interview of role models, with outstanding graduates, outstanding Communist party members, and advanced individuals in innovation and entrepreneurship as interviewees, to dig out the advanced deeds of contemporary youth. We can inspire people with the power of example, and drive people with the role of peer demonstration. At the same time, WeChat public account, Weibo, Ozone and other media platforms can be used to promote the advanced deeds of young people, so that many students with dreams can understand them, identify with them, learn from them, and consciously accept the ideological guidance of examples. [2]

2.2 FOCUS ON STUDENTS AND GATHER PROFESSIONAL SERVICES TO EDUCATE STUDENTS

Innovation network construction, spread positive energy. Colleges and universities are the forefront of ideological education and ideological work. The construction of innovation network is conducive to firmly grasping the discourse right, management right and discourse right of ideological work in colleges and universities. It is good in the ideological guidance and education of young people in the new era. College counselors should encourage students to set up groups to praise the positive energy of the college. College counselors should form college students' network culture studios with disciplinary characteristics and allowing students' interest. College counselors should make full use of new media technologies such as Weibo, WeChat, micro network, micro screen and micro journal to create a series of featured columns. The columns can form a network pattern covering all teachers and students, and unsubtly spread positive energy.

Encourage creative academic lectures to create a good atmosphere of study. In addition to conducting instructional lectures, more academic lectures closely related to science should be held. We can actively invite academic experts to hold academic lectures to tell students about the latest professional research results and insights. At the same time, we guide students to participate in scientific research projects, encourage students to apply for scientific research projects, and other activities. Students are the main task and teachers are the auxiliary task, so that teachers and students can share their feelings and build a strong academic atmosphere on campus.

2.3 TAKE CARE OF SUTDENTS AND PUT HEARTS ON EDUCATION

Strive to provide a platform. Campus cultural activities is the organic combination of moral education, because it can make the education of moral education thoughts, ideas, education intention into a form of spiritual dissolved in the cultural atmosphere. Therefore, we can carry out a series of campus cultural activities with professional characteristics and create a unique college cultural atmosphere by relying on professional characteristics. On one hand, students can cultivate their love and identification with the college through activities, and on the other hand, students can be stimulated to achieve the purpose of education unconsciously. [3]

To educate students well, we must first make students love you, trust you, be willing to approach you and listen to your guidance. Different teacher-student relationships often lead to different educational effects. If you are autocratic, students will feel very depressed and nervous. They are afraid of your criticism and punishment. They are always in a passive state in learning, and their learning enthusiasm is not high, let alone have a sense of innovation. If you don't have a sense of responsibility and let students go their own way, you won't have a good learning effect, because there is always the inert side of people. Without pressure, there will be no motivation. In particular, middle school students of this age have strong plasticity, they do not have a very clear goal, work by interest is the mainstream, and their ability to distinguish good from bad is not strong, which may lead students astray. If you are democratic, you pay great attention to the coordination and communication between teachers and students, care for them from all aspects, understand them with reason, move them with emotion, and have a harmonious relationship. Students feel relaxed and happy. They are very willing to approach you, listen to your guidance, and treat you as a friend. They are highly motivated to learn and have a potential centripetal force, Students can actively participate in various learning activities and have high enthusiasm for learning.

Everyone has self-esteem. Teachers must respect the value and dignity of every student as a human being, especially those who have mistakes and serious shortcomings. Respect for students means not hurting students' self-esteem, not corporal punishment, not abusing students, not snubbing students, not laughing at students, not criticizing students in public at will. To do this, in addition to teachers' high self-cultivation and wise educational skills, it is more important for teachers to have a strong love and sense of responsibility for students. Only by treating students sincerely can we really care for and respect students.

Focus on physical and mental health. [4] At present, more and more attention has been paid to the physical and mental health of college students. The first key to discovering students' problems is to open their hearts. College counselors can carry out sports campus cultural activities jointly participated by teachers and students, so as to build more communication platforms for teachers and students, shorten the distance between teachers and students, enhance mutual friendship. In order to strengthen the awareness of students' attention to physical and mental health, guide students to set up a sunny attitude, healthy and happy growth.

3.CONCLUSIONS

We should lead young people to cultivate patriotism. Patriotism is the cornerstone of establishing lofty ideals. With this most reliable spiritual link, we can consciously resonate with the pulse of national development and the process of national rejuvenation. The novel coronavirus pneumonia is utter innocence and danger. From the 54 Movement, "fighting for the national power, punishing the traitor", to "reform and opening up" to unite and revitalize China, and to fight against the new crown pneumonia epidemic, "fear no danger, rush ahead and forget the death", generations of young people have written heroic chapters of the patriotic progress of Peking University with the hearts of the young and the family. In the new era, we should continue to educate and guide young students, take loving the motherland as the foundation of life and talent, be concerned about the country and the people, love the country and the people, constantly contribute to the motherland and the people, reflect the feelings of patriotism with a lifetime of true investment and a lifetime of tenacious struggle, and let the great banner of patriotism always fly high in our hearts.

Great times give birth to great ideas, and great ideas guide great undertakings. As counselors, we should make full use of good campus culture activities of university. We should focus on the new era, to grasp the new trends of youth ideology. We should carry out campus cultural activities full of connotation, characteristics and significance, to improve the students' humanities cultivated manners, moral sentiment and better promote the growth of young students. We should make them to become a great asset to the party and state.

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Research on the Evaluation of College Ideological and Political Education under the Background of "Simultaneous Development of Five Types of Education"

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Abstract: Ideological and political education in colleges and universities is the direction of the trend of the times. It closely follows the national education policy, implements the fundamental task of cultivating people with morality, and integrates moral, intellectual, physical, and artistic work into the ideological and political education work system. The construction of the evaluation system of ideological and political education work is based on the goal of educating people, testing the effectiveness of education, and then serving the practice of education. In order to deepen the implementation of the "Simultaneous Development of Five Types of Education" education work and help students develop in an all-round way, it is necessary to clarify the connotation of the new era of Five Types of Education, grasp the key to the evaluation of education work, explore the evaluation path, build a long-term evaluation mechanism, and promote the thinking of colleges and universities Political education work keeps pace with the times, and earnestly improve the effectiveness of the Five-Year Education Work.
Keywords: Simultaneous Development of Five Types of Education; Ideological and political education; Education evaluation

1. INTRODUCTION

In 2018, as the fundamental task of Lide Shuren was put forward at the National Education Conference, various departments actively promoted the implementation of the education mechanism, and strived to build an education system for comprehensive training of moral, intellectual, physical, and artistic, with a view to forming a higher-level talent training system [1].

The "Simultaneous Development of Five Types of Education" education model as the guiding ideology has become an inevitable requirement and realistic need for the construction of the ideological and political work system. Colleges and universities will soon run the "Five Types of Education" through the curriculum system of various subjects to build a big ideological and political education. pattern. In 2020, the "Opinions on Accelerating the Construction of Ideological and Political Work System in Colleges and Universities" promulgated by the Ministry of Education and other eight departments pointed out that it is necessary to accelerate the construction of the evaluation and supervision system of ideological and political work in colleges and universities, and implement the "improvement of the system and mechanism of morality and talent cultivation, and the construction of high-level colleges and universities. The goal and task of the ideological and political work system. The proposal of the "Opinions" prompts the construction of my country's ideological and political work system to formally enter the "fast lane". In October of the same year, the Central Committee of the Communist Party of China and the State Council promulgated the "Overall Plan for Deepening Educational Evaluation Reform in the New Era", which made it clear that we must "adhere to the effectiveness of establishing morality as the fundamental standard" and use target completion as the evaluation standard to stimulate school reform and education evaluation. The "Plan" emphasizes that "education evaluation is related to the direction of education development...the ideological and political work is firmly grasped as the lifeline of the school's various tasks, and runs through the entire process of school education management", and further pointed out the direction for education evaluation. Understand the guidance of evaluation, coordinate the integration of school resources, comprehensively promote the "Simultaneous Development of Five Types of Education" education work, and improve the Lide Shuren evaluation mechanism.

2.THE CONNOTATION OF "SIMULTANEOUS DEVELOPMENT OF FIVE TYPES OF EDUCATION" IN THE CONTEXT OF THE NEW ERA

Looking at the historical context of the "five education", it carries the educational mission of several generations. From the "Six Arts" of the Western Zhou Dynasty to the "Simultaneous Development of Five Types of Education" education proposition by Mr. Cai in modern times, "Military national education, materialism education, civic moral education, world outlook education, and aesthetic education are all recent educations must not be neglected" [2], And then to the construction of the multi-disciplinary curriculum system in the early days of the founding of New China. Each stage has its own unique background and is also given its specific connotation by the times.

The demands of education in the new era have changed, and the meaning of the "five education" has changed accordingly. In order to adapt to the new trend and social needs, and in combination with the national education policy, the "Five Educations", on the basis of inheriting the Marxist theory of "the all-round development of human beings", further clarified "for whom to train people", points to "who to train", and responds to "Five Education". How to train people" to further expand the connotation of "five education". [3]First, from the overall perspective, "Simultaneous Development of Five Types of Education" attempts to break the previous phenomenon of "emphasizing intellectual education, neglecting moral education, thin body beauty, and weak labor education", emphasizing all-round development. Second, from the perspective of coordination, "Simultaneous Development of Five Types of Education" emphasizes coordination and linkage, and promotes the implementation of the three-dimensional education. Third, from the perspective of relevance, "Simultaneous Development of Five Types of Education" focuses on systemic training, not a simple patchwork or superposition of independent "one education", but a deep understanding of the basis of the relationship between each "education" The above, so that it forms an interpenetrating and interdependent organism.

3. THE KEY FACTORS FOR CONSTRUCTING THE EVALUATION SYSTEM OF IDEOLOGICAL AND POLITICAL WORK IN COLLEGES AND UNIVERSITIES

Under the vision of "Simultaneous Development of Five Types of Education", the evaluation of ideological and political education in colleges and universities not only focuses on the completion and effectiveness of ideological and political education of college students, but also emphasizes the penetration of five types of education in the process of student growth and the overall development of students Visibility. The education evaluation system is derived from practical exploration, and then serves the education guidance, and is continuously improved and developed in the education work. The construction of the evaluation system of the five education ideological and political education in colleges and universities should strive to reflect the characteristics of the times and the education goals, clarify the elements of education evaluation, and construct the supply side of the ideological and political work through the establishment of evaluation standards, follow the evaluation principles, and focus on key factors such as evaluation methods., Demand-side and management-side target-oriented evaluation.[4]

(1) Clarify evaluation elements

Under the vision of "Simultaneous Development of Five Types of Education", the ideological and political work of colleges and universities in the new era integrates "ethics, intelligence, physical education, art and labor" into curriculum education, which is intended to promote the overall development of students. This determines that the subject of evaluation should be diverse and diverse. Layered. With the establishment and improvement of the "Three Complete Education" big ideological and political education pattern, "Simultaneous Development of Five Types of Education" has become a means of ideological and political education. As the object of education, the proportion of the identity of the student's education object has increased, The result of ideological and political work is no longer limited to ideological morality or ideological and political quality, but the comprehensive quality of comprehensive development of morality, intelligence, physical education, and labor. According to the goals of ideological and political work in colleges and universities and the connotation of "Simultaneous Development of Five Types of Education", the composition of evaluation elements should be based on a multi-layered and multi-layered evaluation and supervision system for ideological and political work in colleges and universities, including the government, colleges, and society. In the dimensions of work mechanism, work implementation, work effectiveness, work characteristics, morality, intelligence, physical education, art and labor are its detailed elements, and the improvement of comprehensive literacy is its ultimate indicator.

(2) Formulate evaluation standards

Education evaluation is based on preset value standards, performance indicators and legal procedures, using scientific evaluation standards and methods, to evaluate the current "Simultaneous Development of Five Types of Education" education system construction effect, efficiency, benefit, etc. The process of evaluation. To evaluate the accomplishment of the fundamental task of "Lide Cultivation of People", we must first know what kind of people it wants to cultivate, that is, the education goal under the vision of "Simultaneous Development of Five Types of Education", and the development of evaluation standards must have goals. Orientation, focus on reflecting the development indicators of morality, intelligence, physical education, art and labor; secondly, there should be a certain plan for how to train people, that is, how to achieve the overall development path design of students, the training method should be clarified in the formulation of evaluation standards, and the effectiveness of educational methods should be emphasized; Refined evaluation tasks can follow up the evaluation results, and facilitate timely review during the evaluation process, seek reasonable evaluation indicators, adjust evaluation standards, and form a practical, effective and operable evaluation system.[5]

(3) Follow the evaluation principle

Any evaluation design must be based on the essential attributes and objective laws of the industry and field to select the principles on which the evaluation is based, so as to avoid evaluation bias or invalid evaluation. To explore the implementation path of ideological and political work education evaluation in colleges and universities under the vision of "Simultaneous Development of Five Types of Education", it should first conform to the laws of higher education, ideological and political work, and management organization construction; As the guidance, strengthen the ideological value guidance, and guide the students' overall growth; then, in line with the characteristics of "Simultaneous Development of Five Types of Education", grasp the main contradictions and secondary contradictions, master the core key, and build the mutual connection of morality, intelligence, physical education, art and labor. A logical overall evaluation system for support. Subsequently, to meet the meaning of educational evaluation, evaluation is to test the effectiveness of education, promote the improvement of educational mechanisms, and achieve the improvement of students' comprehensive literacy, rather than evaluating for evaluation, which loses the original role of educational evaluation.

(4) Focus on evaluation methods

"Moral, intellectual, physical, artistic and labor" are integrated with each other, and the indicators are not completely independent, and manifest in various forms, such as intellectual education. To a certain extent, excellent academic performance represents a better development of students' intellectual education, but the opposite does not mean that students' intellectual development is defective. The characteristics of the Five Educations determine that education evaluation methods should be comprehensively used in a variety of ways to optimize the evaluation methods and evaluation process. First, it is possible to diversify the collection of evaluation data, allowing student self-evaluation, peer evaluation, and teacher evaluation, through the introduction of a third-party evaluation mechanism, or self-evaluation with the help of an online evaluation system, to more objectively and comprehensively evaluate the effectiveness of education; second, Three-dimensional hierarchical evaluation can be adopted.

4. THE IMPLEMENTATION PATH OF IDEOLOGICAL AND POLITICAL WORK EDUCATION EVALUATION IN COLLEGES AND UNIVERSITIES FROM THE PERSPECTIVE OF "SIMULTANEOUS DEVELOPMENT OF FIVE TYPES OF EDUCATION"

Ideological and political work in colleges and universities is the forefront of education of the times, and the improvement of the education evaluation system not only promotes its development towards higher quality. The new model of "Simultaneous Development of Five Types of Education" puts forward new requirements for ideological and political education in colleges and universities. It is necessary to construct a quality evaluation index system for ideological and political education in colleges and universities to promote the effective advancement of evaluation practice. Policy theory is the basis, value guidance is the key, development characteristics are the keynote, data sources are the foundation, and long-term mechanisms are the guarantee.[6]

(1) Based on policy and theory, it fits the educational goals of the times

Colleges and universities shoulder the mission of ideological and political education in the new era. How to integrate the five educations throughout the entire process of college talent training and realize the "three comprehensive education" of full education, all-round education and comprehensive education is the responsibility of ideological and political education., Is also the basic requirement and the basic direction of development of China's education reform. The issuance of "Opinions on Strengthening and Improving Ideological and Political Work in Colleges and Universities under the New Situation", "Implementation Outline of the Quality Improvement Project for Ideological and Political Work in Colleges and Universities" and other documents have provided document guidelines and evaluation criteria for the evaluation of ideological and political education in colleges and universities.

The evaluation system is the "baton" of the quality of education. To ensure the orthodox direction of work effectiveness, we must first carefully study and interpret the spirit of General Secretary Xi's series of important speeches and related policy documents, and understand the demands of the development of the times for talents and the new era of colleges and universities Educational goals; secondly, it should focus on the positioning of universities and decompose the evaluation standards according to the training goals to make the evaluation indicators specific and measurable and the evaluation procedures operable, that is, to form a standard system (or indicator system) that conforms to new ideas and new trends. Only by closely following the education policy can the evaluation of ideological and political work not be separated from the direction of education, and the evaluation results can be effectively achieved, thereby providing a reasonable basis for the continuous improvement and development of ideological and political education in colleges and universities.

(2) Guided by positive incentives, highlighting the significance of evaluation

Evaluation can not only promote and form standards, but also restrain and guide, as well as encourage and strengthen. By comparing the work effectiveness and behavior patterns and index systems of the evaluation objects, the work performance can be predicted in advance. [7] The focus of the effectiveness of ideological and political work in colleges and universities lies in the degree of impact of students. Whether the content of education is rich, whether the standard is sound, whether the method is scientific, whether the guarantee is strong, and whether the effectiveness is significant are the participating factors that affect the effectiveness. The intervention of the evaluation system helps the ideological and political education of universities to be both rigid and flexible. The combination of invisible education and explicit education, the combination of qualitative analysis and quantitative statistics, and clear evaluation standards promote the focus of ideological and political work and highlight the results.

The "Simultaneous Development of Five Types of Education" education model promotes the integration of ideological and political education into teaching management, curriculum system, etc., forming a curriculum for ideological and political education. Contemporary youth are affected by a wide range of channels, and the mixed network environment can easily cause students to lose their way. Colleges and universities should give full play to their ideological and political leading role, clarify the orientation of education evaluation, and guide students' diversified development. Under the influence of the complicated network environment, instead of educating students not to do anything, it is better to guide students how to recognize bad information and promote positive energy. In addition, by commending excellence, motivating advanced, and using role models, a benchmarking effect can be formed, the endogenous motivation of the responsible subject can be stimulated, the circle effect can be exerted, and the influence of exemplary work can be expanded.[8]

(3) It is compatible with Simultaneous Development of Five Types of Education and conforms to the characteristics of student development

At present, "Simultaneous Development of Five Types of Education" is the basic requirement and development direction of education reform in the new era. To evaluate the effectiveness of ideological and political work education in colleges and universities under the vision of "Simultaneous Development of Five Types of Education", we must first meet its main characteristics: integrity, coordination, and relevance, which are both talents under the new political background such as the "community of human destiny" The demands are also determined by the demands of the “new background of science and technology” in the “think tank era”[9]. Moral, intellectual, physical, art and labor are indispensable and inseparable in the construction of an education system for students' all-round development. They must be advanced simultaneously, just like the gears of advancement, through mutual connection, mutual promotion and advancement can be achieved. Secondly, the establishment of the evaluation system must conform to the characteristics of student development. As the subject of education, the obvious person of "Simultaneous Development of Five Types of Education" education effect, students are not only social people, but also independent individuals, they are actors with subjective thinking. The same education training model is used in different students. The effect of educating people is unbalanced. Therefore, the education evaluation index should be integrated with the actual situation of the individual while guiding the overall development of the students.

(4) Using online media as a platform to build a "smart evaluation" system

While the Internet has revolutionized education methods, it has also led to changes in educational concepts. As the pioneers of ideological guidance, colleges and universities actively promote the Simultaneous Development of Five Types of Education. The penetration of the concept of "Internet +" has promoted ideological and political education work carriers and channels in colleges and universities to gradually highlight informatization and networking. The main body and participants of the work have also begun to become full-staffed and full-process, and ideological and political education is no longer limited to ideological and political education. course. The change from ideological and political courses to curriculum ideological and political education means that the main position of ideological and political education has shifted. Behind the many changes, the data sources of ideological and political education evaluation are diverse and multidimensional.

Faced with such a huge data source, it is difficult to meet the accuracy of the data simply by relying on the past manpower paper records, and the inconvenience of data collation affects the effectiveness of education evaluation. The introduction of big data thinking accelerates the linkage of information platforms. Technology grants timeliness for educating people, and the establishment of a "smart evaluation" information platform helps to achieve super-large sample collection and real-time collection, achieve data intelligence, normalize monitoring of ideological and political work, and improve evaluation effectiveness.[10]

(5) Establish a long-term operation mechanism with the guarantee of collaborative education

In the ideological and political education pattern of Sanquan University, the change of education mode means the transformation of the work method of ideological and political education in colleges and universities. The main body and objects of the work have begun to be fully staffed and full-processed. Ideological and political education is no longer limited to ideological and political education. Curriculum is gradually shifting from ideological and political courses to curriculum ideological and political. Colleges and universities must promote the implementation of "Simultaneous Development of Five Types of Education" education work, and need to communicate and coordinate schools, colleges, functional departments, subject teachers, student ideological and political workers, etc. Full participation and follow-up throughout the entire process to ensure basic education for people. [11]More than lines to educate people in an all-round way, to ensure the effectiveness of ideological and political education, it is imperative to unify evaluation standards and integrate educational resources.

5.CONCLUSION

The work of ideological and political education in colleges and universities runs through the life of students, and even affects the three views of students. The short-term activity process evaluation focuses on the current assessment of students, and should focus on guiding students' long-term development, forming an evaluation model that integrates evaluation, tracking, diagnosis, and feedback to test the effectiveness of education and promote the development of education through evaluation. In the process of evaluation Timely review and improve the evaluation mechanism.

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The Application of Grice's Cooperative Principle in the Teaching of English Listening and Speaking for Non-English Majors

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Abstract: Cooperative Principle was proposed by H.P. Grice as a general principle which the participants in a conversation are expected to observe to make the conversation go smoothly and successfully. It has been proved to be one of the important principles for teachers to guide their language teaching. Currently, Chinese teachers are attaching more importance to the teaching of listening and speaking for non-English majors, but there are still some problems concerning English listening and speaking teaching. The paper aims to find out the problems and tackle them by the application of Cooperative Principle.
Keywords: Cooperative Principle; English teaching; maxim; application

I. INTRODUCTION

With the deepening of reform of English education in college, the cultivation of language skills for English learners are turning the focus away from traditional reading and writing and shifting the focus to the comprehensive development of the skills of listening, speaking, reading, writing and translating. The formulation of listening and speaking lessons in college English teaching is to develop the ability of using the language in the real conversation for college students, especially non-English majors, which determines that the teaching of English listening and speaking should be carried out on the basis of the theory of pragmatics, particularly Cooperative Principle, one of the important theories in pragmatics. The application of Cooperative Principle can to some extent provide support for the cultivation of listening and speaking capacity for non-English majors, as well as offer some insights in the teaching design for teachers so as to help the students to better understand the implicature of language and improve the efficiency and effectiveness of teaching.

II. PAUL GRICE'S COOPERATIVE PRINCIPLE

From 1950s, Herbert Paul Grice, an American linguistic philosopher, started his study on conversational implicature theory [3]. In 1967, in *Logic and Conversation*, he proposed his well-known theory of Cooperative Principle (or CP for short) [5], in William James literatures delivered at Harvard University.

He introduced the principle as the general rules that all the participants in a conversation should comply with to make the conversational moves suitable and acceptable. For the further illustration of CP, Grice, echoing Kant, presented the following four categories [1].

1. The Category of Quantity

The category of Quantity refers to the quantity of information to be provided, and under it there are two maxims [1]. First is to make your conversational contribution as informative as it is required under such circumstances. Second is that do not make your conversational contribution more informative as it is required, which means avoiding over-informativeness. Because the excess information might be misleading for the hearers.

2. The Category of Quality

The category of Quality means that the contribution of the speakers should be genuine and not spurious. Under Quality, there is one supermaxim-do not make your contribution false-and there are two specific maxims, which require the speakers neither to say what they believe to be false, nor to say the words or sentences for which they lack adequate evidence [1].

3. The Category of Relation

Under the category of Relation, Grice place only one maxim, namely "be relevant" [1], which means that the speakers should say the words or sentences relevant to the conversation. The speakers should make their contribution appropriate, if the subjects of the conversation are supposed to remain the same.

4. The Category of Manner

According to Grice, Manner is interpreted as relating to how the speakers say the words or the sentences in a conversation. Under the category of Manner, there is one supermaxim, namely, be perspicuous and there are various maxims [1]. Manner requires the speakers to provide brief and orderly information as well as avoid ambiguity and obscurity.

III. PROBLEMS EXISTING IN ENGLISH LISTENING AND SPEAKING TEACHING FOR NON-ENGLISH MAJORS

Listening to and engaging in a conversation is a complex cognitive process involving various factors, which is why the study of English listening and speaking teaching has been widely concerned by the teachers, students and researchers. The part is expected to analyze the specific problems existing in the current language teaching for non-English majors.

1. Lack of Autonomy for Students in the Conversation

Quantity Maxim sets a certain standard for the information provided in the conversation, which is neither too less nor too much, otherwise the participation of the learners and the completion of the conversation will be influenced. Students' language ability and background knowledge have a great impact on its expression in a conversation. In the listening and speaking practice, non-English majors have incompetent language ability and lack the comprehensive understanding of the listening material, which can easily cause misunderstanding, meanwhile, they have narrow vocabulary, which leads to little language output. In the process of conversation, non-English majors often encounter the difficulties of information output, which limits the information they provide for the conversation, thus leading to the consequence that they can't express themselves or share their ideas properly. Such problems make it difficult to formulate a model to practice conversation harmoniously and substantially.

2. Lack of Authenticity in the Contents of Conversation

Quality Maxim highly emphasizes the authenticity of the contents in the conversation, which forbid the information lacking trueness or sufficient evidence to be provided in the conversation. Language serves the purpose of communication, hence the authenticity of English oral conversation and authentic expression of emotions of students are the fundamental elements for students to carry out the conversation effectively. However, in the conversation of real English class, teachers often ignore the authenticity of the contents in pursuing more output of students and set out untrue situation for students to practice their listening and speaking. As a result, in the practice of listening and speaking, non-English majors sometimes carry out the conversation merely for the sake of finishing the task, lacking the input of personal emotion [2]. The actions of both teacher and students hinder the development of the conversation among students and are harmful for the cultivation of students' language ability in the long run.

3. Misunderstanding of the Conversation among the Students

Relation Maxim of the CP requires that the information provided by the speakers should be relevant. The relevancy of the information put forward by both sides of the conversation depends on the true and comprehensive understanding of the subject or the theme of the conversation for the participants. In the listening and speaking practice of English lesson, students who are involved in the same conversation may come from different majors and have different background knowledge and language ability, which may lead to the fact that one student can't truly understand the other, thus failing to reply to the other and ending the conversation. The above-mentioned problem is the common problem appearing in the English class, which should be valued and addressed by the teachers.

4. Lack of Proper Expression of Students in the Conversation

Manner Maxim of the CP highlights that the expression in a conversation should be perspicuous, concise, orderly and avoid ambiguity and obscurity. In the teaching of listening and speaking, teachers should also encourage students to express their point of view in a clear and logical way and avoid the wrong use of words. However, for non-English majors, they have a weak foundation of English language, which sets obstacles for their expression in the conversation and makes it difficult for them to speak English fluently and clearly [4]. In addition, non-English majors have fewer opportunities to listen to and speak English, which makes them less confident. Since they are not confident about themselves, usually when they participate in a conversation, their voices are very low, which is not helpful for the clearness of the expression.

IV. APPLICATION OF CP IN ENGLISH LISTENING AND SPEAKING TEACHING FOR NON-ENGLISH MAJORS

Teaching and learning of English listening and speaking for non-English majors is a conversational activity. Teaching and learning among teachers and students is a kind of conversation, meanwhile the listening and speaking practice among students is also a typical conversation. In the teaching of English listening and speaking, students practice the conversation under the guidance of the teachers, who are both the organizers and the participants. For the problems mentioned previously, here are some countermeasures for the teachers by applying the CP, specifically the four maxims of the CP, in lesson design and in-class teaching.

1. Application of Quantity Maxim

According to Quantity Maxim, teachers should determine the quantity of the contents of listening and speaking teaching. For the students who have better listening and speaking skills, the quantity of contents can be greater and the requirements can be higher. As for the students who have weaker listening and speaking ability, the quantity of the contents should be less and the requirements should be lower [2]. In the interaction between teachers and students, teachers can offer chances for almost every student to answer the questions and show themselves, thus students can be involved in the actual conversation and gradually they can perform better in the English conversation. Besides, teachers can also choose interesting topic to arouse students' enthusiasm to speak bravely and confidently so as to improve the adequacy of expression in the conversation.

2. Application of Quality Maxim

In accordance with Quality Maxim, teachers are required to set up authentic situations for students to carry out the listening and speaking practice. Authentic situations, which are more likely to take place in the real life, can encourage students to be actively participated so as to improve their listening and speaking ability. For non-English majors, they are in the non-native language environment when they are in English lessons, so it is difficult for them to carry out English listening and speaking practice. Therefore, teachers should take into consideration of various factors while choosing the listening and speaking material to make it highly related to students' real lives. What's more, teaches can also fully utilize the abundant teaching resources to carry out the teaching activity of English listening and speaking, for example, the English Corner, to activate students' interest in participating and to make them feel the natural conversation in the real situation.

3. Application of Relation Maxim

Based on Relation Maxim, teachers should provide relevant information for the students before the listening and speaking practice. Students should acquire the knowledge first before they are expected to express themselves. Teachers should present some words, phrases or sentences patterns related to the given topic, then they can guide the students to understand them and remember them. Next, teachers can practice the topic with the students together by the use of the words, phrases and sentence patterns. Only in this way, can the students understand the conversation completely and know how to apply the knowledge in the real conversation. What's more, for the intercultural communication, students should also be provided with the knowledge of customs, values and cultures of the English-speaking countries, for comprehensive understanding of authentic English conversation.

4. Application of Manner Maxim

In the light of Manner Maxim, English teachers are supposed to standardize their own language use in English class before they teach the students how to use the language properly. In students' listening and speaking practice, teachers should pay close attention to their expressions and give them instant feedback, either to correct their mistakes or recognize their performances to help them express logically and clearly and gradually improve their listening or speaking ability. Besides, teachers can also introduce English TV series and movies to the students, such as Friends and The Big Bang Theory, and present detailed analysis of the words and expression to help students understand the proper use of English language of native speakers in the real life.

V. CONCLUSION

Cooperative Principle is one of the fundamental theories of English conversation. The proper use of Cooperative Principle can help English teachers to carry out English teaching activities effectively and efficiently. The paper interpreted Grice's Cooperative Principle and its four categories of Maxims, analyzed the problems existing in the English listening and speaking for non-English majors, as well as provided solutions and suggestions to solve the problems by applying the four Maxims of Cooperative Principle. By applying Cooperative Principle in English teaching, teachers can to some degree build harmonious relationship with students and guide students to mobilize their enthusiasm in participating in English listening and speaking practice so as to improve their comprehensive English skills. However, Grice also pointed out that in the actual conversation, people may violate the CP deliberately in order to avoid embarrassment or unpleasantness. The violation or flouting of CP in English teaching also needs further study.

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Teaching Reform and Practice of Ideological and Political Education for College Students Based on Classroom Sharing

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Abstract: The course of ideological and political theory is the key course to carry out the basic task of moral education. Classroom teaching is the main position of ideological and political education, need to play the leading role of teachers and students as the main role. Practice teaching is an effective way to carry out ideological and political course teaching reform. Tapping ideological and political education resources and carrying out ideological and Political Education in college students' classroom sharing practice can effectively enhance the teaching effect of ideological and Political Education.

Key words: Class Sharing; ideological and political theory course; teaching reform practice

1. INTRODUCTION

At the National Symposium for Teachers of Ideological and political theory courses, general Secretary XiJinping pointed out that "The ideological and political theory course is the key course to carry out the basic task of establishing morality and fostering people... the key to running the ideological and political theory course is teachers, and the key is to bring into play teachers'enthusiasm, initiative and creativity."[1] The ideological and political theory course is the main channel for college students to have a world outlook and outlook on life and values, in order to achieve the actual effect of ideological and political education, we should make good use of the main position of ideological and political class. By using the teaching mode of sharing practice in the classroom of college students, we should stress the student-centered educational concept, give full play to the leading role of teachers and the main role of students, and improve the initiative of teachers and students, improving the actual effect of ideological and Political Education.

2. CONNOTATION AND CHARACTER

The original meaning of sharing is to share with others to enjoy, use, can also mean to let others feel their own feelings, such sharing can be material or spiritual. College Students' classroom sharing refers to making full use of practical teaching links in class, giving full play to teachers' leading role and students' subjective role, and giving college students the opportunity to show and express themselves in class, college students use their own teaching mode to let others know, understand and feel what they see, feel and think about related problems. The main feature of classroom sharing teaching model is the direct reality based on practice. In essence, class sharing is a kind of classroom practice teaching mode, in which students' class sharing practice partly takes the place of teachers' pure theory teaching, class sharing fully reflects teacher-student interaction, and teachers and students have a strong sense of participation. The effect of class-sharing is more intuitive and clear, through their own language, body movements, expressions and other elements to show their awareness of things or issues, emotions, attitudes and values. Classroom sharing also has the characteristic of rational thinking. The sharers show that they have gone through a process from perceptual knowledge to rational knowledge, through concepts, judgments, reasoning and other rational thinking.

3. MAIN PROBLEM

First of all, the classroom sharing of college students effectively plays the leading role of teachers and students. Students' classroom sharing is a process and means to bring students' initiative into full play, and let students actively observe social phenomena and experience the flavor of life by combining the relevant theories of ideological and political courses they have learned, to realize the emotion of loving the motherland, loving the hometown and loving the people, to give the companion the corresponding ideological and political education, to carry on the education of world outlook, outlook on life, value outlook, to realize the application of learning. At the National Symposium for Teachers of Ideological and political theory courses, general Secretary Xi pointed out that ideological and Political Education "Should adhere to the unity of dominance and subjectivity, and ideological and political education cannot be taught without the guidance of teachers. At the same time, it is necessary to strengthen the study of students' cognitive rules and accepting characteristics, and to bring into play the role of students' subjectivity."[2] in the process of students' practice and sharing, on the one hand, the teacher's leading role is also reflected, such as the setting of the sharing theme, the refinement of the values contained in the students' sharing practices and cases, and the evaluation of the students' views, the control of the whole sharing process, classroom management, and so on, and when students share, there may be unexpected situations in the classroom, which require proper guidance and guidance from the teacher. On the other hand, students' subjective status is presented, and students are invited to share their real practical experience. Students can also play the role of "Speaking out", at the same time, it can make up the limitation of other students' personal experience, such as time, region and personal experience, enhance the appeal of ideological and political course, and stress the actual effect of ideological and political course teaching. In practice sharing, students' subjective status is fully reflected, and at the same time, they tend to be similar with other students' age and psychology, which can cause empathy and play the role of peer education.

Secondly, the sharing of college students' classroom practice highlights the role of practical teaching as an important supplement to theoretical teaching. General Secretary Xi pointed out that ideological and political courses Should adhere to the unity of theory and practice, train people with scientific theories, attach importance to the practicality of ideological and political courses, and combine ideological and political small classes with social big classes. Famous educator Tao Xingzhi said that "Life is education." "Society is school" [3]. The teaching reform of ideological and political theory course actively explores the mode of practical teaching and education should also be oriented to life science and sociology. "Practice makes perfect" and "Practice is the only criterion for testing truth" [4] both illustrate the importance of practice. Because the classroom teaching is the main position of the ideological and political course, the teaching time is abundant, the traditional teaching mode of pure theory teaching is inclined to the teacher's teaching, the students just accept passively, and the ideological and political course is difficult to arouse the students' attention, teachers and students' sense of attainment in ideological and political education will be affected. Teachers and students do not have a strong sense of ideological and Political Education, ideological and political education teaching effectiveness will be affected. The sense of attainment in ideological and political education refers to the satisfaction that can be obtained through the teaching activities of ideological and Political Education. In addition to attracting students to enhance the teaching effect and enhance the sense of obtaining ideological and political lessons by using the ideological charm of theory and the personality charm of teachers, it is also necessary to make effective use of the main position of classroom practice teaching to reform the teaching mode of ideological and political lessons, innovate the teaching method and mode of ideological and political course, stress the practice of class sharing to enhance the actual effect of ideological and political course teaching.

4. OTHER PROBLEM

After figuring out why college students are sharing in class, what are they sharing? How to share? To make clear these basic problems can make better use of classroom sharing this teaching method to enhance the ideological and political teaching effectiveness.

(1) what sharing involves mastering the content and themes of class sharing

What to share is to grasp the subject and content of ideological and political education shared by college students in class. According to the teaching content and the requirements of teaching design, we should mainly educate students on world outlook, life outlook and value outlook. Teachers should fully integrate their own curriculum to share the theme, or according to what aspect of ideological and political education teachers want to students to determine, or according to the sharing of students in a timely summary of the promotion. On the out-of-school practical course of ideological and Political Education with the participation of teachers and students. For example, take a visit to the Dongguan Exhibition Hall, a Patriotic Education Base, where students can get an intuitive understanding of the historical changes and cultural customs of Dongguan, and a visit to the Naval Warfare Museum, where students combine the cultural relics they see, exhibits can feel the textbooks do not feel things, such as the sense of history, the sense of live experience. After the visit, students are invited to share their experience of the visit, and to share their impressive footage during the visit. Due to the wide participation in this kind of practical activities, as long as the students who are serious about the visit can have something to say. In addition, the visit plus performance class, such as in the site visit, students have to combine the theme of the performance, such as Sitcoms, poetry recitation, etc., the end of the event to share the experience.

(2) how to share first of all, grasp the opportunity and form of sharing.

For example, during the summer and winter holidays, students have more time to participate in social practice, sharing in classes at the beginning of the summer and winter vacation, and sharing for the first time after the statutory holidays, when students are separated for longer periods, the desire to share is also strong. Students have the ability to share what they have seen, heard, thought and thought. Or after a large-scale activity, students do feel deeply and don't feel unhappy, at this time, teachers will organize sharing activities will flow naturally, and will be able to achieve better results. At the same time, give students time to prepare for sharing. For example, sharing tasks can be arranged in advance to give students enough time to prepare and experience, so that the content of the sharing will be enriched and the theme will be bright. If students are well prepared, they will be more confident when sharing. How to share and how to share. For example: can use the classroom topic speech, speech, can also use the news report, current affairs commentary, the song sings, the sketch, the Sitcom performance, the micro film display and so on form. No matter which form, must combine the theme and the student characteristic, suits is best. No matter which form is used, the form is for the content and theme of the service, must not be able to pursue the form of fancy and give up this wood. This will only put the cart before the horse and lose the meaning and value of sharing.

5. EXAMPLE

The author creates the opportunity actively in the ideological and political lesson teaching practice, develops the university student classroom sharing practice teaching reform, has accumulated some typical real cases, next analyzes the university student's classroom sharing to the ideological and political lesson education actual effect influence. From the students' sharing, we can see that the university students' world outlook and outlook on life and values are quite correct. It also proves that our ideological and political education has a positive effect on the students' growth and talent, strengthening ideological and political education is an important way to promote students to grow up.

(1) Sharing of life and love. A female student shared her experiences and feelings of caring for her mother who was seriously ill in the hospital during the summer vacation. She shared what she saw in the hospital. She saw the patient's pain in the hospital, and the impermanence of life, because people go into the operating room and never come out. She and her sister are doing their best to take care of her sick mother. Through this experience, she learned the value of life and health, to love health and life, to understand love and responsibility and meaning. The other students in this sharing can see that this student loves her mother very much, the female student and her sister are very filial. Not everyone had the experience of caring for a patient, but the girl shared something that other students felt, and some of them even shed tears. This sharing makes teachers and students feel the importance of loving life, caring for family members and loving health. This actually gives the present schoolmate has done is the very good life view and the health view education, simultaneously is also a regarding death education turning point. We usually don't talk about death, but it's a problem that everyone has to face. Understand the meaning of life and death, live while you can, and do meaningful things. Fear Life, Love Life. Let students realize that although people cannot determine the length of life, but can broaden the width of life. We can't change things, but we can change the way we look at things. Some students soon realized from the sharing of students can no longer stay up late, to exercise more to strengthen the body, work and rest should be regular.

Students share the event itself and share their feelings, teachers can timely from life and health to the actual college students themselves, rise to the responsibility and love, and how to face the topic of death. Our ideological and political education may have few direct life education, but life is only once for everyone. How to teach our students to love life and care for health, when you're not in the middle of a lecture.

(2)On the part-time share of safeguarding rights. It is very common for college students to take part-time jobs. What if in the course of part-time job, the rights and interests are infringed upon? One student shared that he, too, had been treated unfairly in the course of his part time job, failing to sign a employment contract but winning the battle. In this sharing inside the students feel that it is very necessary to learn some legal knowledge. At the same time, the sharing reflects the student's positive attitude towards life. There are some unfair things in life. Do we accept it or fight it? This student's practice lets other students simultaneously realize the reasonable safeguard rights the importance. This sharing is not only for students to carry out the concept of the rule of law education, at the same time learn to face the issue of positive attitude is very important. Part-time is a lot of college students spare time will do things, how rational and correct maintenance of rights, the students made a good example.

(3) Sharing of views on labor and money. How do college students treat part-time work and money? Some students shared their experience of earning money in the process of part-time work, learn self-discipline and deal with different people and things, they learn to grow up, at the same time, they realize that their usual consumption should be moderate, should study well, enhance their ability and quality. Some students share the joy of earning money through their part-time work to buy things they like. This involves the concept of labor and money, consumption, as well as part-time process of dealing with human relations. This also confirms from another aspect that life is education, society is university. Social Life will teach students a lot of books, the campus can not learn things. Through this student's sharing, has had the part-time work experience the classmate to have the resonance specially. One after another expressed that through part-time work, they can not only understand the hard work of making money, but also the difficulties of parents. They advocated that college students should consume rationally, not compare themselves with others and not waste money, but also realize the fun of making money and buying things, and learn to take responsibility. More can urge oneself to study well, cherish study time.

(4) Sharing about learning. Study is the main business of college students. What do college students think of study? A student told the story of his use of the holiday training class to learn oral English so that students are impressed by our students have so much love to learn, the original excellent is reasonable. This sharing lets students know that college is not for playing, because while you're playing, someone else is studying. This inevitably creates a sense of urgency for the rest of the class. This is the person should be responsible to oneself, oneself should make good life plan. We may only see some students sing well, some students fluent in English, behind the actual success is to pay a lot of

effort, no one will casually success. The students realize that the only way to get results is to give, and that college is not for playing but for learning. The worst fear is that someone better than you will try harder than you.

(5). On changes in one’s hometown. In the situation and policy class, some students shared their sense of pride in the changes in their families and their hometowns. They deeply felt that their hometowns were making progress, becoming better and better, and the lives of the people in their hometowns were getting better and better. The teacher leads the students to think about the beauty of their hometown because the policies of the Party and the state are getting better and better, they understand the value of the CPC’s “People-centered “concept, and they practice the ecological civilization view of “Green Water and green mountains are the Silver hill”[5]. Of course, some students feel that their home town has not changed much, or nothing changed, especially looking forward to their home town can become more beautiful and better like the home of students. This is the education of observing society and experiencing life, feeling the influence of the Party and the State’s policies on the regions and individuals, feeling the imbalance of regional development, and realizing that individuals are closely connected with the fate of the country and society. Through the sharing of students, most of the students have a sense of pride in the positive progress of their home town, but also a sense of urgency for lack of progress. The sharing exercise students’ insight and sensitivity to current events, college students will also recognize that with the motherland and people to progress together, to the same side.

(6) Sharing about the festivals and customs in their hometown. Students from different regions share their hometown festivals and customs. From the sharing, the students felt the love of people from different regions for life, the inheritance of traditional custom culture, the charm of traditional culture, and the significance and responsibility of understanding cultural inheritance, to enhance cultural self-confidence and as a Chinese sense of pride, self-confidence. We usually talk about patriotism. Patriotism is first and foremost about loving one’s home. To understand the customs of his hometown, there are students in the sharing of his hometown endorsement, students are welcome to visit his hometown.

(7)CONCLUSION

Through the above-mentioned students’ sharing cases, we can see that classroom sharing is a good source of ideological and political education resources, can be a useful supplement to classroom theoretical teaching, and at the same time can give full play to teachers’ leading role and students’ main role, close to the actual life of students, more targeted, grounded gas, can let teachers and students have resonance. At the same time, the sharing exercises the students ‘language expression ability, logical thinking ability, pays attention to the students’ emotional attitude and values, and improves the students’ sense of obtaining ideological and political lesson accordingly. Of course, ideological and political education courses of different content can be around the curriculum-related topics, set a corresponding sharing theme, while using a variety of ways and means to enhance students’ enthusiasm and participation. Teaching and learning is the process of teaching and learning teachers and students are closely related. Classroom sharing can effectively integrate the two and bring their respective strengths into full play.

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Analysis on cultivation and application prospect of Lindera megaphylla Hemsl

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Abstract: This paper summarizes the cultivation techniques and application prospects of lindera megaphylla from the tree species, seedling cultivation and prospect analysis. Focus on the cultivation techniques and prospects of lindera megaphylla, analysis of their prospects.
Keywords: Lindera megaphylla Hemsl; Cultivate; Application prospect

1. INTRODUCTION

Lindera megaphylla Hemsl, also known as loquat nanmu, Black nanmu and large nanmu, it is a tree of the genus Piper in Lauraceae.There are 50 species in China, mainly distributed in the provinces and districts of the Yangtze River[1-2], Lindera megaphylla Hemsl nigricans is an evergreen tree belonging to Piper nigrum of Lauraceae, its bark and branches can be used as medicine.Wood can be used for furniture or building[3], not only that, It has high landscape value.In recent years, it has been applied in Chongqing, Anhui, Zhejiang and other places, showing a good market prospect.At present, the research on Lindera megaphylla Hemsl mainly focuses on seed propagation, seedling cultivation and seedling resistance.The results showed that Lindera megaphylla Hemsl is suitable as a landscaping introduction.It can be in Xi 'an, Guizhou and other places to promote landscaping.Through the analysis of the market of the Lindera megaphylla Hemsl, at present, the price of Lindera megaphylla Hemsl seedlings is higher, the market share of large seedlings is less, the market prospect is good, and it is worth cultivating from seedlings.

2. SPECIES CHARACTERISTICS OF LINDERA MEGAPHYLLA HEMSL

(1) Biological characteristics

Lindera megaphylla Hemsl is a rare evergreen tree of Lauraceae.The tree is high, the leaves are much larger than other varieties.Leaves are born in branches, usually 15 cm above;Petiole 1.5 -- 3cm long, leaf blade oblong to ovate-oblong, 10 -- 23cm long and 3 -- 7.5cm wide, apex acuminate or mucrocaudate, base cuneate, dark green, glossy above, pale below, reticulate veins conspicuous.Flowers dioecious, umbels axillary, with short pedicels;the involucre is gray white, densely pubescent, falling off when flowering, and each inflorescence has 9-16 flowers;pedicel and perianth tube densely white or yellowish brown tomentose;the flowers are purplish red;the perianth has six pieces, spoon shaped to strip lanceolate. It can conceive nine stamens. The anthers are 2-loculed, all of which are inward lobed;the ovary is ovate, the style is longer, the stigma is capitate;fruit elliptic to ovoid, 1.8cm long and 1.3cm in diameter, greenish-black at maturity, with a persistent, thick, woody cup receptacle at the base;the stem is about 1.3cm long.The fruit is oval to ovate, the receptacle expands to cup-shaped, the seeds are long oval ovate, the flowering period is May-June, the fruiting period is September-December, it is an excellent large leaf-watching tree species.

(2) Morphological characteristics

Lindera megaphylla Hemsl to soil requirements are not strict, it likes deep, fertile, loose and well drained soil.More resistant to water and moisture, in the high water table of the wet ground can also grow.It can withstand short-term flooding, but not drought, barren, and saline soil.Taproot developed, deep roots, wind resistance.But in the plain of high groundwater level growth roots shallow, vulnerable to wind damage, and more early senility.Lindera megaphylla Hemsl of the soil requirements are not strict, like deep, fertile, loose and well-drained soil.More resistant to water and moisture, in the high water table of the wet ground can also grow.It can withstand short-term flooding, but not drought, barren, and saline soil.Its taproot developed, deep roots, wind resistance.But in the plain of high groundwater level growth roots shallow, vulnerable to wind damage, and more early senility.

3 CULTIVATION AND ANALYSIS OF SEED SEEDLINGS OF LINDERA MEGAPHYLLA HEMSL

(1) Planting substrate

The seedbed substrate is a mixture of yellow heart soil and humus with a ratio of about 1: 2, which makes the seeding substrate slightly acidic.

(2) Seed treatment

Lindera megaphylla Hemsl is suitable for seed propagation.The seeds have a dormant stage, which belongs to physiological dormancy type, and dormancy can be lifted only by low temperature.Generally, outdoor wet sand stratification can be used in winter, and then sowing in the next spring.Low temperature sand storage for seeds, the appropriate temperature is 0℃~5℃, generally in outdoor ditch storage.In autumn, the seeds have been dried after harvesting, and in winter, the seeds should be soaked in the sand for 24 hours.The humidity of sand is 60%, which is suitable for grasping a wet sand by hand. The sand does not drip when you grip it vigorously, and the sand is not spread out.Before sowing, soak the seeds in 5‰potassium permanganate solution for 30 min, remove the seeds, rinse them repeatedly with water, and dry them(If radicle has protruded seed coat, do not disinfect with potassium permanganate), then soak the seeds in 0.01% gibberellin solution for 24h and dry them before sowing.The germination rate of seeds treated with GIBberellin was 38% higher than that treated with water.Seeding using broadcast or drill seeding, after the completion of seeding covered with plastic film or straw, until the seedlings began to excavated, in cloudy or sunny evening remove the plastic film or straw.

(3) Sow

The seed is evenly distributed in the seedbed, covered with 1-2cm sieved fine soil, and covered with plastic film after being drenched with water. The sowing amount is 30-40g/m2, and the film can be uncovered when the seedlings are unearthed.

(4) Field management

It prefers a warm, humid climate, grow according to actual circumstance, regular weeding and watering, watering sooner or later undertake advisable, toppings can every time.The disease of Lindera megaphylla Hemsl is mainly strapless disease and quenched disease.After the seedlings were excavated, 0.125% carbendazim solution and mancozeb solution were cross-sprayed once a week.When the seedlings grow more than 2 true leaves, about 6cm can be transplanted and bagged in batches.To promote germination of lateral roots, cut off 1/3 of taproots with scissors after removal, dip roots in mud with root powder, and transplant to bag seedlings.Put the bagged seedlings into the shade net and water them according to the soil moisture in the nutrient cup.Water once a day, according to the humidity control watering amount, after the recovery period of seedlings timely strengthen fertilizer and water management[4].It can be poured once a week, and urea is applied every half month from June to September. After September, seedlings grow slowly, and 0.5% potassium dihydrogen phosphate aqueous solution is sprayed on the leaves to promote lignification.Intertilling and weeding should be combined with fertilizer and water management throughout the growing period.When the seedlings grow to 15-20cm, the shade net shall be removed appropriately, and the seedlings shall be tested, and normal field management shall be carried out in the later stage[5].The cold resistance of seedlings is weak.Annual or biennial seedlings can not overwinter in the open ground, they can only survive the winter safely under plastic wrap;more than three years of seedlings plus certain cold-proof cultivation measures, they can outcrop safety winter, adult trees have a certain cold resistance.In long-term water conditions, it is easy to cause root rot and death.Water and fertilizer management should be strengthened, and drainage should be prevented after rain.In dry years, ditches are opened and water is applied;generally 3-4 times per year, compound fertilizer and urea 750 kg/hm2 can be applied.According to the analysis of plant height and ground diameter, the growth was slow in the first three years, and obvious growth only appeared in the fourth year.In general, there are two significant growth peaks (spring and autumn) in the amount of growth in a year.According to this, the fourth year can strengthen water and fertilizer management, we can strengthen water and fertilizer management in the first growing season, the second growing season should reduce water and fertilizer supply, and to be treated with some growth retarding agents, improve its cold resistance, ensure its safety over winter.

Professor Fei Yongjun's research group from The School of Horticulture and Landscape Architecture, Yangtze University conducted a study on the formula fertilization and resistance of Lindera megaphylla Hemsl. The main research results can be divided into the following four aspects:

First, the effects of different formulations on the growth and physiology of Lindera megaphylla Hemsl.Taking annual Lindera megaphylla Hemsl seedlings in Dahongshan as the research object, they studied the growth and photosynthetic physiology of Lindera megaphylla Hemsl after 8 fertilization treatments: N fertilizer, P fertilizer, K fertilizer, NP mixed fertilizer, NK mixed fertilizer, PK mixed fertilizer, NPK compound fertilizer and no fertilization (CK).The results show that: (1)The application of compound fertilizer (NPK treatment) promoted the growth of Lindera megaphylla Hemsl Dahongshan most obviously, and the use of N fertilizer and NP fertilizer also promoted the growth of seedlings.(2)The photosynthetic rate of Lindera megaphylla Hemsl Dahongshan had little difference under different formula fertilization, and the net photosynthetic rate of compound fertilizer (NPK) was the highest[6].

Secondly, the cold resistance of seedlings of three Lauraceae species by CaCl2 and SA was studied, the results showed that when the concentration of CaCl2 was 25mmol / L, the effect of improving the cold resistance of Lindera megaphylla Hemsl nigricans seedlings was the most obvious, when SA concentration was 10mmol / L, the effect of improving cold resistance of Phoebe nigricans seedlings was the most obvious;the conductivity value of Lindera megaphylla Hemsl nigricans is low, and the chlorophyll content and soluble sugar content are higher than those of Nanmu and Nanmu Minnan, peroxidase activity was significantly higher than that of Nanmu and Nanmu Minnan. In this regard, Lindera megaphylla Hemsl is more suitable to be introduced as a landscaping plant[7].

Thirdly, the resistance physiology of Lindera megaphylla Hemsl nigricans under high temperature stress was studied. The seedlings of Lindera megaphylla Hemsl nigricans were treated at 30 ℃, 35 ℃ and 40 ℃, the results show that: The morphology of Lindera megaphylla Hemsl nigricans seedlings changed little under high temperature stress of 30 ℃

and 35 ℃, but the leaves basically died after stress of 40 ℃.It shows that Lindera megaphylla Hemsl has strong resistance to high temperature and it can adapt to high temperature stress through a series of protective physiological and biochemical reactions[8]. Fourthly, the physiological response of Lindera megaphylla Hemsl nigricans under low temperature and waterlogging stress was studied. The annual seedlings were used as research materials. The results showed that: When the temperature is below 0 ℃, the leaves show different degrees of withered yellow, ice crystal and frostbite, but they have a certain adaptability to water stress[9].

(3) Pest control

Every year in July to carry out the control of the pocket moth, in September to control the thorn moth.Trichlorfon 7.5kg/hm2, mixed water spray, winter combined with the construction of insect removal package, sick branches, to ensure the normal growth of the next year.0.1%-0.125% carbendazim solution and mancozeb solution cross spray for pest control[10].

4. PROSPECTIVE VALUE ANALYSIS

4.1 Medicinal value

The roots, bark and branches of Lindera megaphylla Hemsl can be used as medicine. The main effects are dispelling wind, dehumidifying, subsidence of a swelling and relieving pain.In recent years, d-bicuculline extracted from the roots of Lindera megaphylla Hemsl scabra by Chinese scientists and technicians has obvious antitumor effect, Japanese scholars have also isolated apophene alkaloids with antitumor activity from Lindera megaphylla Hemsl.

4.2 The economic value

The seed kernel contains nearly 50% oil. The oil is non-drying oil, which is the raw material for making soap. Peel, leaves contain aromatic oil, oil can be used as raw materials for flavor adjustment.Wood is yellow brown, straight texture, fine structure, it can be used for decorative veneer, furniture and building materials.

4.3 Landscape value

4.3.1 As an important landscaping tree species, landscape value has obvious advantages.

⑴Good ornamental characteristics: Lindera megaphylla Hemsl nigricans is a large broad-leaved evergreen tree with straight trunk, large crown, thick shade, majestic tree capital, dense, beautiful and fragrant branches and leaves. It is an excellent court shade tree and street tree in the city.Lindera megaphylla Hemsl, Cornus officinalis, aloes and fragrant fruit trees have become wonderful flowers in landscape architecture.

⑵Strong stress resistance: Lindera megaphylla Hemsl has the ability to resist wind and smoke, it has strong resistance to chlorine, sulfur dioxide, fluorine and other toxic gases, it can absorb a variety of toxic gases and better adapt to the urban environment. Therefore, it is often used as a greening tree species in the plant and mining area.Growing season less pests and diseases, but also an important environmental protection tree species.

⑶Better cultural values: With strong growth and long life, Lindera megaphylla Hemsl is often associated with religion and sacrificial activities.For example, a thousand year old Lindera megaphylla Hemsl was found in front of Huilong Temple in Xixia County, Henan Province. As the "temple Protection tree" of the temple, this tree has been guarding in front of Huilong Temple.In laofengang village, Maotang Township, Xichuan County, there is a Lindera megaphylla Hemsl for more than 400 years, with a tree height of 18m, a crown length of about 28m and a diameter of 95cm at breast height. Sacrificial activities to pray for peace in the village are carried out under the tree.

⑷Resistant to pruning and strong germination: When transplanting, it can cut off 1/3 to 1/2 of the tree crown with branches and leaves, which can not only ensure its survival rate, but also speed up the landscape, so that it can achieve the greening effect in the fastest time.

4.3.2. Lindera megaphylla Hemsl has various forms of plant landscape in gardens, which can meet various forms of configuration

⑴Choose medium and large size Lindera megaphylla Hemsl, solitary plant in the prominent position of the garden green space, so that the canopy fully stretch, shade ramp, excellent ornamental effect;It can also be planted alone in the pool, water, lawn, square, hillside or bridge, so that it fully shows its individual beauty in nature.

⑵Two plants can be planted symmetrically at the entrance of landscape garden, bridge head and building entrance to serve as scenery or highlight the central point. Two plants of exactly the same size can be planted in a symmetrical way, which is more common. Two plants of different sizes can also be planted asymmetrically, and the effects produced by the two planting methods are different.

⑶Choose the sidewalk, lawn or isolation belt on both sides of the road with rod diameter of 8-15 cm.It can not only shade dust, reduce noise, but also form two beautiful scenery lines on both sides of the road.The list is planted in the place such as the edge of waterside, poolside, slope, also do not have some appeal.Create a flower into a groin, winding path through the secluded artistic conception.Especially with forest edge, waterfront home.

⑷Lindera megaphylla Hemsl can also be planted in clumps, in combination, in groups or in forests.Because of its good viewing characteristics, large area landscaping can create a more imposing green forest landscape, it can make the landscape open and show the momentum of the grand, rich in sensory shock.

4.4 Market price analysis

At present, most of the sales on the market are mainly seeds. There is no small amount of small and medium-sized green seedlings for sale. The plant height is 1-2m, and the price is 5-10 yuan.The Lindera megaphylla Hemsl seedlings cultivated by relevant flower seedling companies have a plant height of 5-6m, a DBH of 10-14cm, a tree age of about 10 years, and a price of 600-800 yuan;individual high quality, the price of higher specifications is more expensive, the tree of larger specifications is basically not sold, and most of it is wild resources;due to its high landscape value, many areas have realized its great potential in landscaping.Chongqing, Henan and other areas have been used in urban greening, and achieved good greening effect;in addition, Xixia County, Henan Province also produced a large number of Lindera megaphylla Hemsl, and exported.Liu Xijun and others from Xi 'an Botanical Garden of Shanxi Academy of Sciences introduced seedlings and seeds from Zhenba County on the Northern Slope of Bashan Mountain. After 13 years of experiments, they studied the growth law, reproductive technology and adaptability to stress, and finally clearly showed that: It can be cultivated in the open field in Xi 'an and promoted and applied as a landscaping tree species in Xi 'an.

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Research On the Path of Sri Lanka's Health Tourism Promoting Economic Growth in The Post Epidemic Era

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Abstract: In the post epidemic era, people prefer green ecological health tourism, health tourism and other tourism products, which makes health tourism in a favorable position.Sri Lanka is rich in health tourism resources, but there are some problems in its development, which makes Sri Lanka's health tourism can not serve Sri Lanka's economy well.Therefore, from the perspective of Sri Lanka's health tourism helping economic development, this paper first introduces the development of Sri Lanka's health tourism, including the discussion of the development stage and current situation of Sri Lanka's health tourism.And then, through PEST analysis, this paper analyzes the political, economic, social and technical environment of the development of health tourism in Sri Lanka, and finds the opportunities, challenges, advantages and problems in the development of health tourism in Sri Lanka.Finally, it puts forward corresponding development strategies such as innovative resource integration, consolidating talents, reshaping industry confidence and digital transformation and upgrading, so as to provide a feasible path for health tourism to help Sri Lanka's economic development.

Keywords: Health tourism; Sri Lanka; Post epidemic Era

1. DEVELOPMENT STATUS OF HEALTH TOURISM IN SRI LANKA

1.1 Health tourism

Health tourism has a long history. The concept of health tourism in the West originated in ancient Greece.After the change of history, the change of social system, the development of technology and the innovation of people's concept of health, the connotation and manifestation of health tourism have been changing.Regarding the definition of health tourism, Xue Qunhui and others (2011) believe that health tourism is a kind of special tourism product, it combines with the health preserving of traditional Chinese medicine, modern medical means, mental health guidance and other means conducive to physical and mental health to carry out travel and fitness activities.He Meiqing (2013) proposed that health tourism is a combination of health products or resources and leisure tourism, which is a combination of health care, sports fitness and leisure tourism.Chen Jianbo and other scholars (2016) by summarizing the domestic and foreign research on the concept of health tourism, thought that the concept of health tourism can be divided into three types: “Goal Theory”, “Process theory”and “Product theory”.According to the literature review, health tourism generally includes medical tourism, health tourism and health-preserving tourism. Although they have different emphases, they all have the same goal, that is, they all take health as the primary motivation of tourism, the pursuit of health, self-cultivation and so on. The healthy traveling market is broad, the business opportunity is infinite, has demonstrated the huge development potential.

1.2 Status of health tourism in Sri Lanka

Health tourism resources in Sri Lanka. Health Tourism is based on the original resources and facilities of tourism, forestry, agriculture, medical treatment and other industries. It is formed by cross-industry, innovative integration and win-win cooperation.Sri Lanka is rich in health tourism resources, hot springs, herbal health, mountains, oceans, tea gardens, Buddhist culture, hot springs and so on can become the basis of Sri Lanka’s Health Tourism Development.SPA resources such as Jaffna falls spa, traditional herbal health medicine such as Ayurveda, many luxury hotels and seaside resorts are equipped with Ayurveda Massage Treatment Center;The park category includes Sinharaja Forest Reserve, Yala National Park, Udawallawi National Forest Park, Royal Botanic Gardens, etc.. Sri Lanka’s tea plantations are mainly located in the Highlands and southern islands; Sri Lanka’s long coastline, Riviera di Levante, known as the “Gold Coast”, rich in marine tourism resources;
Buddhism has a long history in the history of Sri Lanka, and Buddhist temples built by Buddhists in Sri Lanka are scattered across the country. The ancient temple of Kandy, the ancient capital of the Anuradhapura, and the ancient temple of Tambura are listed as World Heritage sites. Sri Lanka’s health tourism resources scattered throughout the island, but especially in the southwest coast, the central city and Kandy and the mountains and other areas of the most popular.

*Development of health tourism in Sri Lanka.*Health tourism industry is a new industry, at present, Sri Lanka’s health tourism industry is still in the initial stage of development, mainly medical tourism. Sri Lanka Tourism Minister Prasanna Ranatunga said Sri Lanka will rank among the top five "global health tourism destinations" in 2021, and said that after

COVID-19, world tourists are more concerned about their psychological, mental and physical health. There is more and more demand for Ayurveda and traditional medicine.and Sri Lanka has deep roots that the government is trying to promote.According to the Institute of Global Health, Sri Lanka ranks fourth among healthy travel destinations and is the "Best destination for psychotherapy".Indira Malwatte, director of the Sri Lanka Export Development Authority, said that Sri Lanka had identified health tourism as one of the key development and promotion industries in its national export strategy and had developed action plans with relevant departments.

2.PEST ANALYSIS OF HEALTH TOURISM IN SRI LANKA

1.1 Political environment (P) Analysis of health tourism in Sri Lanka

National Policy Support. Indira Malwatte, director of the Sri Lanka Export Development Authority, said that Sri Lanka had identified health tourism as one of the key development and promotion industries in its national export strategy and had developed action plans with relevant departments.Sri Lankan Tourism Minister Lana announced that the government will invest 519 million rupees in tourism development projects in 2021.From October 1, 2021, Sri Lanka has carefully relaxed travel restrictions to allow fully vaccinated tourists to travel under less travel restrictions, which has promoted much-needed economic and foreign exchange growth.

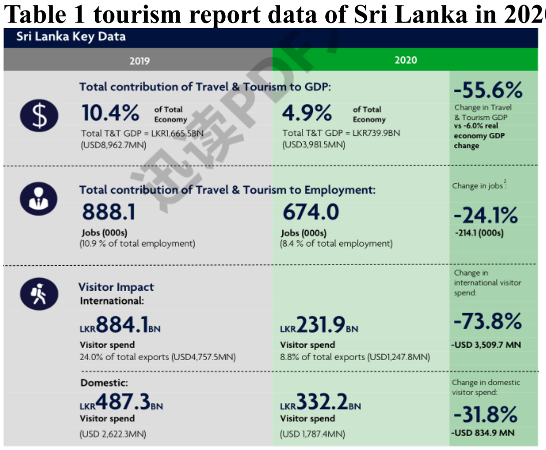
Strong support during the epidemic. Under the influence of the epidemic, the Sri Lankan tourism authorities not only extended the debt suspension period to banks and financial companies and arranged preferential working capital for the industry, but also asked the Central Bank of Sri Lanka to provide new relief.In order to expand this support, the Sri Lanka Tourism Board further requested the central bank to write off outstanding debts or interest exemptions to maintain stakeholders.Sri Lanka Tourism Authority will continue to assist all stakeholders seriously affected by the epidemic. At the same time, continue to explore new markets and promotion channels to attract "new normal" travelers to ensure the revival and sustainability of the industry.

1.2 Economic environment (E) analysis of health tourism in Sri Lanka

The epidemic has a great impact on Sri Lanka's tourism industry. Tourism accounts for 5% of Sri Lanka's GDP and is one of the country's important economic pillars. According to statistics, compared with the number of tourists entering Sri Lanka from January to April 2019, the number of tourists from Africa will decrease by 50.8% in 2020; The second is from Asia and the Pacific, with a decrease of 49.2%; The number of people from the Americas and the Middle East decreased by 48.4% and 41.3% year-on-year respectively.According to the tourism statistics report of Sri Lanka Tourism Statistics 2020 (Table 1), the following data show that COVID-19's impact on Sri Lanka Tourism is very obvious.

Increased willingness to health tourism. At the end of 2019, after the occurrence of COVID-19, people's attention to health problems has been increasing. Healthy tourism has become an important part of tourism development. So far, 100 countries and regions in the world have carried out health tourism, and more than 50 countries regard health-related tourism as a "national industry" and formulate a series of incentive measures to encourage its development.According to relevant data, the annual average growth rate of global health tourism revenue is 6.5%, more than twice that of the overall tourism industry.With the continuous improvement of human health awareness, Sri Lanka's health tourism has obtained unprecedented development opportunities and become an important way for sustainable tourism development.

Table 1 tourism report data of Sri Lanka in 2020



Sri Lanka Key Data

	2019	2020	
Total contribution of Travel & Tourism to GDP:	10.4% of Total Economy Total T&T GDP = LKR1,665.5BN (USD8,962.7MN)	4.9% of Total Economy Total T&T GDP = LKR739.9BN (USD3,981.5MN)	-55.6% Change in Travel & Tourism GDP vs -6.0% real economy GDP change
Total contribution of Travel & Tourism to Employment:	888.1 Jobs (000s) (10.9 % of total employment)	674.0 Jobs (000s) (8.4 % of total employment)	Change in jobs: -24.1% -214.1 (000s)
Visitor Impact International:	LKR884.1BN Visitor spend 24.0% of total exports (USD4,757.5MN)	LKR231.9BN Visitor spend 8.8% of total exports (USD1,247.8MN)	Change in international visitor spend: -73.8% -USD 3,509.7 MN
Domestic:	LKR487.3BN Visitor spend (USD 2,622.3MN)	LKR332.2BN Visitor spend (USD 1,787.4MN)	Change in domestic visitor spend: -31.8% -USD 834.9 MN

1.3 Social environment (S) analysis of health tourism in Sri Lanka

Tourism model transformation. In the past, tourism was mainly offline consumption, followed by travel agencies around the world. However, the epidemic has affected people's consumption habits and spawned new needs. When people can't travel, more and more people become active Internet users and join the army of online tourism. Through a mobile phone and a computer, they have crossed the regional and time constraints, reduced costs, improved efficiency and enriched experience. All these have facilitated the development of health tourism in Sri Lanka.

*Competition with neighboring countries.*A UN report on the service industry says India is becoming one of the most popular medical tourism destinations in the world.Mysterious and rich tourism resources, national traditional medicine, high-quality medical services, the lowest medical price in Asia and the advantage of national common English have also added weight to India's medical tourism.Medical tourism in India is designed in the form of package according to different needs, which is deeply welcomed by medical tourists.In 2018, medical tourism created 40 million jobs in India every year. India is considered the best international medical tourism destination. These undoubtedly brings challenges to the development of health tourism in Sri Lanka.

1.4 Technical environment (T) analysis of health

tourism in Sri Lanka

Lack of professionals and low service capacity. At present, Sri Lanka is very short of health tourism talents, especially the comprehensive talents in planning, operation, marketing, service, interpretation and cultural publicity required by health tourism.Due to the scarcity of professionals, Sri Lanka's health tourism has exposed many problems in the development process.For example, the receptionists of health tourism do not have a comprehensive grasp of relevant professional knowledge and can not give effective introduction and guidance to tourists, resulting in a weak sense of enthusiasm and experience.The lack of health talents in Sri Lanka is bound to affect the promotion and construction of all links of the industry and hinder the large-scale development of health tourism industry.

The medical system is relatively complete. The treatment of traditional medicine in Sri Lanka is similar to that of traditional Chinese medicine.It is unique in the treatment of snake bite, fracture, rheumatism and skin diseases.Sri Lanka also has many luxurious Ayurveda resorts, folk medicine hospitals, and many hospitals dominated by western medicine to provide various health services for medical tourists.Sri Lanka has a perfect traditional medicine system, Western medical service system, alternative medicine practice medical system and health care network, which is the most ideal medical tourism destination for medical tourists.

3.DEVELOPMENT PATH OF SRI LANKA'S HEALTH TOURISM PROMOTING ECONOMIC GROWTH

3.1 Sri Lanka's health tourism integrates the development of products and services to transform resource advantages into economic advantages

Sri Lanka is rich in resources, which provides a solid foundation for the integration of health tourism resources and tourism industry. Secondly, Sri Lanka has rich and unique Ayurvedic resources, which has ideal curative effect on migraine, headache and central nervous system diseases. It can develop Ayurveda series products, such as ointment, medicinal wine, medicinal tea, essential oil and various health drugs, and become health tourism products with Sri Lanka characteristics after processing and packaging.Sri Lanka is rich in tropical marine biological resources. Sea cucumbers, sea dragons and other marine organisms can tonify the kidney in traditional Chinese medicine and have high nutritional value. Sri Lanka can increase investment in scientific research, actively develop tropical marine biological health products, realize the transformation from resources to health products, and promote the development of health tourism. Develop "tea garden + tourism". Tea has irreplaceable historical and cultural significance and socio-economic value in Sri Lanka.Sri Lanka can take the excellent traditional culture of picking tea in rural areas as the core to establish a harmonious relationship between people and their hearts, people and people, and people and nature, so as to promote the physical and mental health of tourists.

3.2 Cultivate and attract health tourism talents to provide strong intellectual support for health tourism economy

At present, Sri Lanka is very short of compound talents in the field of health tourism, which hinders the development of health tourism.In terms of training talents, they should establish a joint training mechanism with Sri Lankan universities, vigorously cultivate healthy tourism talents and cultivate correct health concepts.In terms of introducing talents, they should use relevant preferential policies and Sri Lanka's future prospects to attract a group of high-quality talents.However, Sri Lanka's economic development level is low and its attraction to high-quality talents is not obvious. According to the actual situation, policies can be appropriately relaxed to introduce a group of practical talents for development first. In addition, we can fully tap the potential of existing talents. Due to the lack of highly skilled medical talents in Sri Lanka, we can make use of the policy of multi-point medical practice to give full play to the talents of medical talents. Through systematic training, cultivate a group of translators proficient in foreign languages and network information technology talents, which can integrate in many fields and serve the health tourism industry, so that it can quickly meet the needs of the development of health tourism.

3.3 Reshape the confidence of the tourism industry and stimulate the development of healthy tourism economy and domestic demand

Improve the level of tourism public safety and enhance tourists' consumption confidence. Under the background of normalized epidemic prevention and control, how tourism enterprises establish a health, safety and health image and improve tourists' consumption confidence is an important link in the revitalization and recovery of tourism industry. To really boost tourists' consumption confidence, Sri Lanka must fully ensure tourists' health and food safety during travel.Tourism enterprises should strengthen tourism public health service guarantee measures, improve tourism safety emergency response capacity, and constantly improve crisis management strategies.Learn from the successful experience of emergency response mechanism at home and abroad, form a pragmatic tourism safety emergency system and coordination linkage mechanism, strengthen the training of tourism safety emergency knowledge and skills for tourism practitioners, improve the professional quality of emergency teams, and effectively improve the crisis warning and emergency response ability of tourism enterprises.And formulate national unified tourism safety standards and service specifications to minimize the health and safety risks during the journey and reduce or eliminate tourists' psychological barriers.On the basis of ensuring tourism safety, optimize the form of tourism products, strengthen service innovation, create a high-quality and healthy tourism market, meet the needs of tourists for safety, leisure and personalization, and boost tourism consumption confidence.

3.4 Accelerate digital transformation and upgrading to provide technical support for the development of health tourism

In view of the insufficient digitization degree caused by technology and funds, it is suggested that the Sri Lankan government and relevant departments issue support or reward policies to promote the digitization construction of scenic spots.Sri Lanka should make use of intelligent temperature measurement system, social distance prompt system, online real name reservation system and big data monitoring system to effectively meet the development needs of industries such as reservation consumption, information release, flow control, intelligent navigation and product marketing.Relying on VR, 5g and other emerging technologies, vigorously optimize online business, expand marketing channels, and actively explore a new mode of integrated development of healthy tourism resources and digital creativity.For the hotel industry, it still pays most attention to safety, hygiene, health and other issues. Therefore, the hotel industry urgently needs to optimize and innovate the future hotel products and management mode to create the most trusted and reassuring consumer place for the people, so as to alleviate or eliminate people's psychological concerns.The combination of man and machine can be applied in the front desk reception, back office management, prevention and control and other service processes to create an unmanned and contactless operation mode, strengthen online intelligence, and improve industry efficiency and future competitiveness while meeting tourists' consumption habits.

3.5 Optimize the national tourism image, enhance international competitiveness and expand the market for the development of healthy tourism economy

Restore global international cooperation and build a safe tourism environment. One belt, one road, should be first developed to restore tourism trade with the neighboring countries. The tourism and diplomatic cooperation should be expanded step by step, and the package of integrated transnational tourism routes should be designed to open cross-border tourism projects and combine the opportunity to restore the pattern of entry and exit tourism.Secondly, in order to have long-term strong contacts with people in different countries, regions and cultures, we must carry out long-term professional communication with travel agents, cultural brokerage companies and community cultural management institutions in the countries and regions where we are located, steadily improve the satisfaction of inbound tourists, and finally reach and stabilize at a high level.Then learn from the successful handling experience of tourism crisis events, use social media to carry out a series of two-way marketing and publicity activities with source countries to show the new image of Sri Lanka's tourism and promote the rapid recovery of Sri Lanka's tourism market.The Sri Lankan government can publicize Sri Lanka in various forms to improve Sri Lanka's international popularity and enhance its international competitiveness.For example, Sri Lanka Tourism Promotion Bureau will launch a new "so Sri Lanka" advertisement through CNN, participate in international exhibitions related to tourism around the world, and invite news media and tourism experts from all over the world to Sri Lanka for publicity.

4. CONCLUSION

In conclusion, on the basis of PEST analysis of health tourism in Sri Lanka, combined with the actual situation, this paper analyzes the problems existing in Sri Lanka's health tourism helping economic development in the post epidemic era, and puts forward feasible development suggestions from different dimensions such as promoting resource integration, strengthening digital construction, improving national image, reshaping industry confidence and consolidating talents, In order to help Sri Lanka transform health tourism resources into health tourism economy.Fight the epidemic and tide over the difficulties. Due to my limited academic knowledge, the suggestions on Sri Lanka's health tourism helping economic development are also one-sided and limited, and the topic selection needs to be further studied.

ACKNOWLEDGEMENTS

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Epidemic Prevention Access Control System Based on Computer Vision

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Abstract: During the epidemic, epidemic prevention, as the top priority in the "Fight against epidemic" work, should attract our attention, and apartment as the main living place of people, an apartment access control system integrating identity identification and epidemic prevention detection is particularly important. The anti-epidemic access control system designed in this paper is mainly controlled by RK3399 embedded platform, with camera and non-contact infrared temperature probe, and OpenCV opening source computer vision library is used to design corresponding detection, identification algorithm and control program. LBPH algorithm is used to realize face recognition. Mask testing was completed using skin color area comparison method; Body temperature was measured using infrared thermometry. Based on computer vision technology, this paper realizes three functions of face recognition, mask detection and automatic temperature measurement, and the accuracy of face recognition reaches 90%. Mask detection accuracy reached 92%; Temperature detection accuracy reached 92%. Finally, identity identification, mask detection and temperature detection are integrated to realize fast and non-contact epidemic prevention detection, providing an efficient and feasible automatic solution for apartment epidemic prevention and access control system.
Keywords: Face recognition; Mask detection; Temperature detection

1. INTRODUCTION

Since the beginning of the epidemic, AI companies have quickly developed and launched a series of products related to epidemic prevention with their own advantages to help the country's epidemic prevention. The epidemic prevention detection system has rapidly developed from the manual detection system with independent components into an automatic detection system integrating identity detection, mask detection and temperature detection. In the past, identity recognition is mainly based on password and IC card verification. Today, with the rapid development of computer vision technology, face detection technology has been deeply involved in identity recognition system, which brings leapfrog development for non-contact identity recognition [1]. As apartments are the main place where people live, it is important to conduct quarantine checks on people entering and leaving apartments. Therefore, this paper makes a physical platform based on the current situation, and realizes the three functions of face recognition, mask detection and automatic temperature measurement on the basis of computer vision technology, and has the advantages of stability, accuracy and speed.

2. WORKING PRINCIPLE

The system block diagram of the epidemic prevention and access control system is shown in Fig.1. The RK3399 main control platform communicates with the USB digital camera through the USB interface to collect real-time image information for face recognition algorithm and mask detection algorithm. It communicates with MLX90614 temperature measurement module through UART interface, and collects temperature information of the tested person for automatic temperature measurement algorithm. Through the MIPI interface, it communicates with the 7-inch LCD screen with touch, and displays real-time images, prompts, alarms and other information on the LCD screen [2].

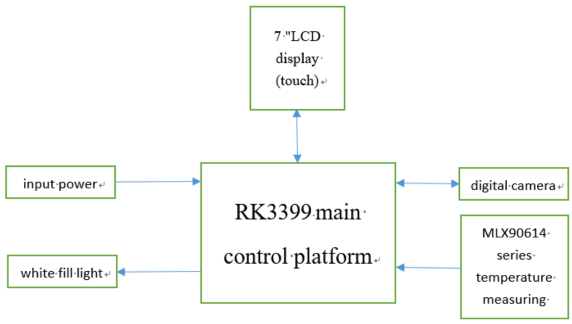

Figure 1. The system block diagram

3. HARDWARE SYSTEM DESIGN

The USB digital camera is connected with the main control through the USB interface; MLX90614 non-contact infrared temperature measurement serial port module is connected with the main control through UART interface; The 7-inch IPSLCD display with touch is connected with the main control through MIPI interface. The power supply of the whole system is DC12V. The overall flow chart is shown in Fig .2. The overall physical drawing is shown in the Fig.3.

3.1 Selection of master platform

In this design, RK3399 embedded platform is selected as the main control platform of epidemic prevention and access control system. Its internal advanced six-core, large and small core architecture (quad-core Cortex-A53+ dual-core Cortex-A72) and integrated independent coprocessor (NEON) ensure its low power consumption and ultra-high performance [3]. RK3399 also provides rich common interfaces such as GPIO, UART and SPI, making it highly extensible. Most importantly, RK3399 supports Linux operating system, which provides great convenience for computer vision algorithms to be deployed on its platform. The physical picture of the main control platform is shown in Fig.4. RK3399 main control platform mainly realizes three functions: communicate with USB digital camera through USB interface, receive real-time images for face recognition algorithm and mask detection algorithm; Communicate with the automatic temperature measurement module through the UART interface, receive the real-time temperature information of the tested for the use of the automatic temperature measurement algorithm, communicate with the 7-inch LCD display screen through the MIPI interface, receive touch screen information and display the prompt, alarm and other information and real-time images through the LCD.

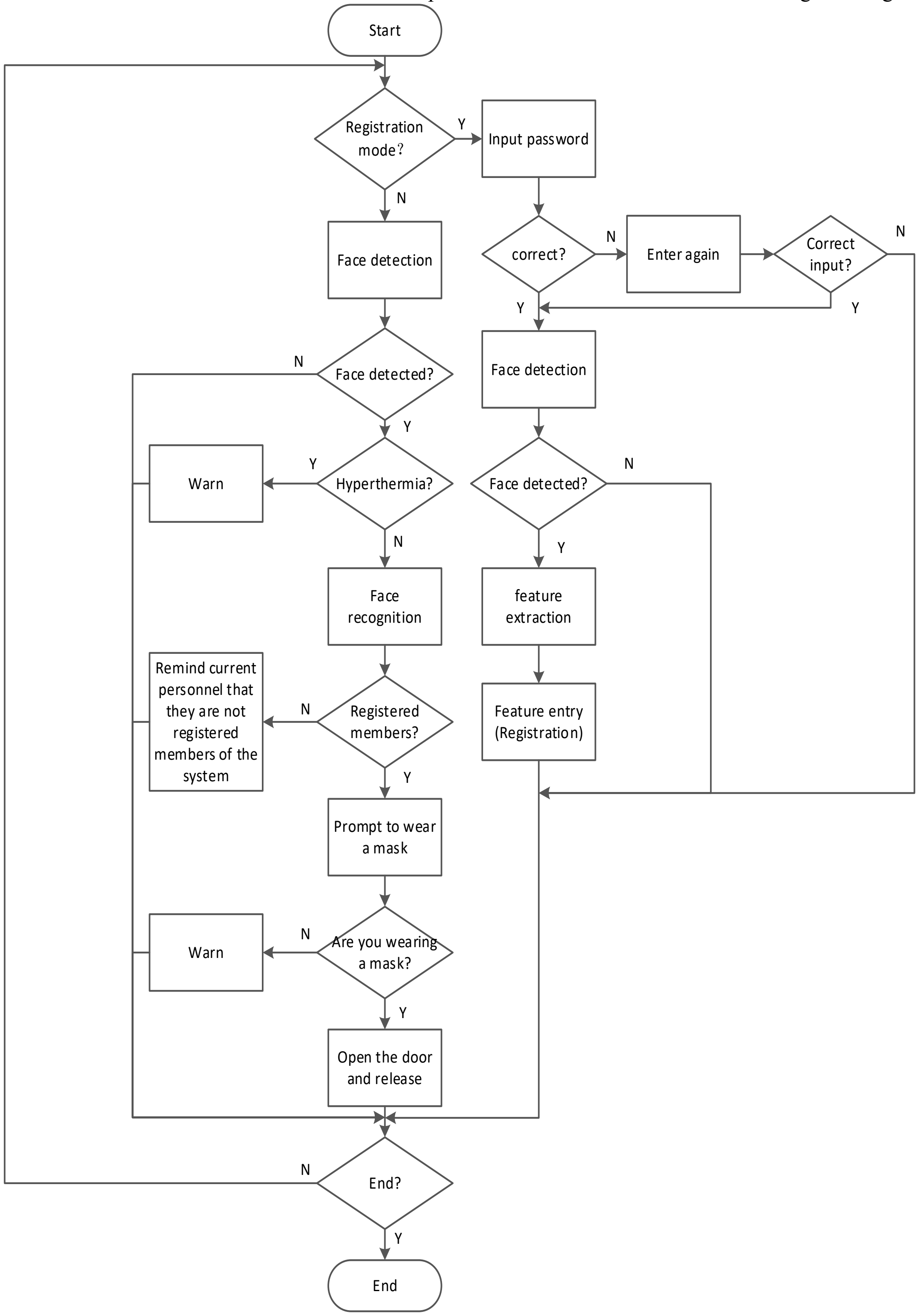

Figure 2. Program flow chart

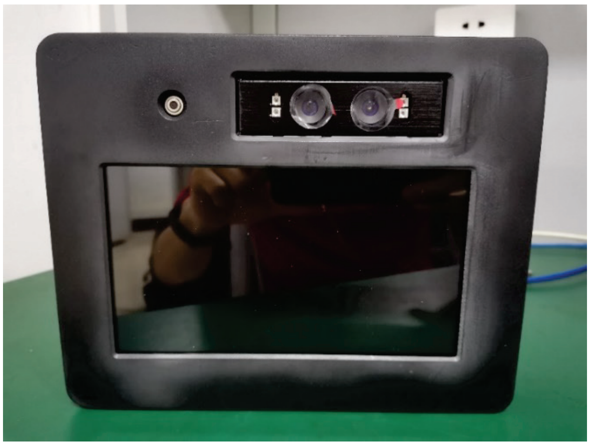

Figure 3. Overall physical drawing

3.2 Camera

In this paper, a 2 million pixels USB digital camera without drive is used to collect real-time images. USB digital camera has the following advantages: fast speed; The price is low; Low technical threshold, low requirements for users' technical knowledge reserve, installation can be used; It can be quickly arranged without the need to set up a dedicated server. The main function of USB digital camera in this paper is to collect real-time images, communicate with RK3399 master control platform through USB interface, and transmit real-time image information to the master control platform for face recognition algorithm and mask detection algorithm to use. The camera is shown in Fig .5

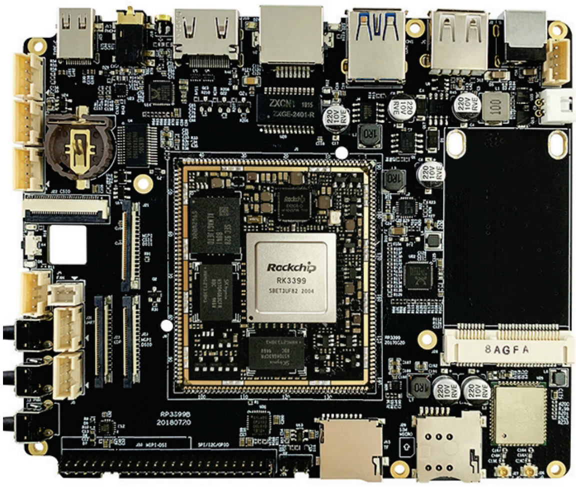

Figure 4. Physical picture of main control platform

Figure 5. Camera

3.3 Temperature measurement module

The temperature measurement module selected in this design is MLX90614 non-contact infrared temperature measurement serial port module. It has excellent stability and temperature measurement accuracy. It is widely used in non-contact temperature measurement equipment such as handheld forehead temperature gun. The MLX90614 non-contact infrared temperature measurement module integrates UART interface to facilitate communication with RK3399 main control platform. The main function of MLX90614 non-contact infrared temperature measurement serial port module is to collect the real-time body temperature of the measured person, and transmit the body temperature information to RK3399 main control platform through UART interface for automatic body temperature measurement algorithm. The temperature measurement module is shown in the Fig.6.

Figure 6. Temperature measurement module

3.4 Display module

This design selects the 7-inch IPSLCD display screen with touch as the system display and alarm module. IPSLCD has the advantage of wide visual range, up to 178 °. It can achieve perfect display from all angles without whitening and color distortion. The IPSLCD selected this time mainly communicates with RK3399 main control platform through MIPI interface to display real-time images, prompts, alarms and other information, and can realize good human-computer interaction with the attached capacitive touch screen. The display module is shown in the Fig.7.

Figure 7. Physical drawing of IPSLCD display screen

4. EXPERIMENTAL TEST

During debugging, it is found that the face recognition function does not get stuck or crash during operation, and has good stability and reliability [4]. In addition, the face appearing under the camera can realize the function of detection and recognition. The recognition similarity of the face recognition system reaches about 90%, and the average recognition speed is about 300 milliseconds, which reflects that the function module has certain performance in accuracy and real-time.

The collected image is preprocessed, and the eye area is obtained by human eye detection. The area twice the height below the eye area is regarded as the mask area, and the skin color areas of the two areas are calculated respectively [5]. Compare the skin color area of the eye with that of the mask area. If the former is less than the latter, it means that the mask is not worn; If the latter is smaller than the former, the mask has been worn. Mask identification is shown in Fig .8.

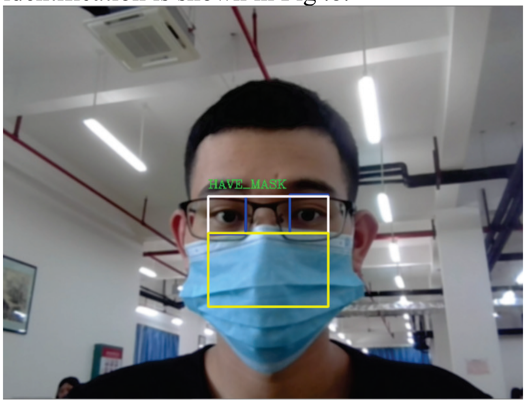

Figure 8. Physical drawing of IPSLCD display screen

The mask detection function test is completed. After debugging, it is found that the mask detection function does not get stuck or collapse during operation, and has good stability and reliability. In addition, the face under the camera can be detected. The accuracy of mask detection function is about 92%, and the average recognition time is about 250 milliseconds, which reflects that the function module has very good performance in accuracy and real-time.

After the automatic temperature measurement function is turned on, the temperature of the tested person is measured through the non-contact infrared temperature probe, and multiple groups of data are recorded. The temperature of the tested person is measured and recorded by using the non-contact temperature measurement device that meets the national standard on the market at the same time and under the same conditions, Compare the body temperature data of the epidemic prevention system and the non-contact body temperature measuring device meeting the national standard at the same time and under the same conditions, calculate the deviation, and the obtained data are shown in Tab.1.

Table 1. Temperature measurement data

Measuring equipment / Time	Epidemic prevention access control system(℃)	Standard equipment(℃)
Morning of the first day 9:00	36.5	36.6
Noon of the first day 12:00	37.0	36.9
Afternoon of the first day 18:00	36.6	36.4
Morning of the second day 9:00	36.3	36.5
Noon of the second day 12:00	36.8	36.9
Afternoon of the second day 18:00	36.4	36.4

At this point, the automatic temperature measurement function test is completed. After debugging, it is found that the automatic temperature detection function does not get stuck and collapse during operation, and has good stability and reliability. In addition, the absolute error between the measured data and the standard equipment is no more than 0.2 ℃, the measurement time is within 100ms, and the result is reliable. It reflects that the function module has very good performance in accuracy and real-time [6].

5. CONCLUSION

The epidemic prevention access control system designed this time takes the rk3399 embedded platform as the main control of the system, cooperates with the camera and non-contact infrared temperature measuring probe, and realizes the three functions of face recognition, mask detection and automatic temperature measurement by designing the corresponding control program. It integrates identity recognition, mask detection and body temperature detection, and applies the current popular computer vision technology to realize rapid and non-contact epidemic prevention detection, which provides an efficient and feasible automation scheme for apartment access control system. With the economic development and scientific and technological progress, computer vision technologies such as face recognition are becoming more and more mature. It is hoped that these technologies can escort people's safety and the rational allocation of public resources, and enrich and facilitate human life.

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Promotion of Different Types of Music to Sports Art

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Abstract: The use of literature and field observation method to study the use of various sports activities and music. Main conclusion: The type of sports music depends on the type of sports items, and the overall application trend is developing towards specialization, which has done a basic guiding work for the development of art and sport. Suggest: in music technology and music art development relatively mature age, according to the demand of the development of sports and mass sports activities, to develop more types of music and music works, it would promote the sports development, stimulating mass sports interest and get twice the result with half the effort of carrying out the sports activities, has direct guidance, interests, activate the positive role.
Key words: Music; Sports rhythm; Sports atmosphere

1. INTRODUCTION

As the crystallization of the integration of sports and music, sports music reflects the "reality dynamic beauty" in the "concentrated embodiment of the beauty of mind and emotion" [1]. With the deep integration of sports and music, they are gradually presented in a variety of inseparable modes, which not only plays a role in creating and setting off the atmosphere, but also makes the sports culture contain more artistic, spiritual and emotional characteristics, and plays a role in stimulating and burning passion, inspiring and cultivating interest in all kinds of sports activities. Based on this, this paper carries out research on sports items and applicable sports music, as well as the research and development, promotion and applicable trend of sports music, so as to throw off a brick to attract jade in the development of sports music.

According to the functional types of sports items, it can be divided into "fitness sports music, competitive sports music and recreational sports music", and according to the application mode or purpose, it can be divided into "excitation-inducing music, main structure music, background music and relaxation music" [1]. This paper classifies them as follows based on their functions and application modes:

1.1 Background type

As the background of sports, music is the basic function and application purpose of all kinds of sports by creating and rendering an emotional atmosphere. Combined with the size of various sports activities and the number of projects, there are two background functions: (1) Background sports music. Generally, to comprehensive large sports venues broadcast music as a representative, such as in the National Games admission ceremony broadcast in the march, etc., all the audience has a positive role; For example, playing some kind of music or songs in city stadiums or school stadiums can also play a role of emotional stimulation. Therefore, the background sports music has the function of universal applicability to the audience. The specific sports background sports music. The application of sports music in the process of a specific event, such as light music during taijiquan practice, march in track and field competitions, can stimulate the passion and guide the rhythm of a specific event and its movement.

In the practice of sports, background music is in the status quo of dispensable, generally according to the actual sports venues or venues, there are organizers or even athletes themselves to decide, but the use of natural effects or not different, relatively speaking, the former is better, the latter second.

1.2 Leading

The so-called dominant music is the music type that plays a basic, supporting and guiding role in sports activities, such as sports skills, sports project process, and even sports level. The common ones are: (1) Sports and art projects. As the international and domestic large events such as sports dance project, figure skating, etc., as the daily activities such as square dance, aerobics, fitness dance, music played a indispensable role in these projects, skills of sports movement, rhythm, and even the completion of difficult moves, etc., has a leading and supporting function directly. Fashion sports events. Such as yoga, hip-hop, music melody and rhythm directly determine the completion of its motor skills, yoga to slow light music, hip-hop to fast rhythm of heavy metal music.

The application of the two dominant types of sports music, the former is characterized by "suspense and changeable music" and can "change music according to the trend of the plot" [2]. Although the latter also has the effect of stimulation such as orgasm, the melody is relatively unified in the whole movement process.

1.3 Inspire type

Because of the use of the occasion, project and timing of music, the stimulating effect is completely different. Common phenomena are: (1) extreme ability excitation type. Sports music, as an emotional melody with stimulating effect, has the guiding and inspiring effect of extreme guidance and ability supernormal play to athletes in specific sports situations. For example, in the sprint stage of middle and long distance running and the climax moment of the difficult movements of figure skating, the specific use of music can motivate athletes to play beyond their daily performance or even basic physical ability, so that they can achieve ideal results or beyond the normal level of sports. (2) Interest stimulation. Making full use of music's activating effect on people's emotion and interest can get twice the result with half the effort in cultivating some kind of sports interest. According to the emotion of singing and dancing and the law of movement psychology, it conforms to or supports the psychological music of the audience and can directly guide the audience to carry out certain sports. For example, the dynamic music of square dancing can attract more passers-by to participate in the sports team directly. For example, in the preparatory stage of school PE teaching, it plays an efficient role in inspiring students' interest in learning. Focus on the priming type. Including the use of distracting music, such as in basketball games, table tennis games, volleyball games and football matches in the stadium cheerleading or cheerleading sports music, the audience has the role of attention trigger, help to relieve the audience in the tense watching situation and mood of eye fatigue or mental fatigue; Almost all kinds of sports music have this function. For example, sports dance music can arouse the attention of athletes. For example, music of square dance can arouse the interest of other non-dancers.

2. MUSIC APPLICATION PROJECT TYPES AND APPLICATION METHODS

With the integration of sports and other arts, the application of sports music is developing towards a more professional direction and becoming an indispensable part of some sports projects.

2.1 Sports art projects and whole-course application

Appropriate music is one of the basic elements of the artistic sports or other art projects. This is one of the most typical and representative forms of sports music specialization. Combined with the practice of sports music application, the performance is: (1) Competitive projects and their application. For example, sports dance, figure skating, water ballet, etc., in the competitive process of these projects, the scientific, spiritual and accurate application of the theme of sports music, to the athletes' competitive level, artistic competition process, etc., have a direct decisive role. In the application, the music of related themes runs through the whole course of each competitive athlete's movement, organically unifying the beauty of competitive events and the beauty of music, which is the classic carrier of the beauty of sports music. Fitness and entertainment projects and their applications. In aerobics, aerobics, yoga, dance and music using fitness club environment is given priority to, among them, the music of the former has the characteristics of distinct themes, such as selection of specific song or music as background music, etc., the latter to bodybuilders like the relevant type of music works the looping is given priority to, or even regular change related stuff. Its key point is to create a happy and harmonious physical and mental atmosphere.

There are two kinds of applications: first, music is used throughout the entire physical activity. For example, in the whole process of calisthenics has been the use of suitable dynamic music, in order to achieve continuous motivation and exercise guidance for bodybuilding. The second is the full application of a project or a competition process. It can use only one kind of music or music, etc., or it can use multiple music coherently. For example, in the whole course of sports dance competition, different music will be continuously used.

2.2 Sports athletic events and time period application

Sports music in time periods is the most common phenomenon. Especially in the era of the full development of all kinds of competitive sports, sports music is gradually applied to various competitive events in an official way with appropriate forms and contents. Common are: (1) theme song application of large-scale events. Take the Olympic Games, Asian Games and Football World Cup for example, the theme song has become the opening ceremony, and even throughout the whole process of the identification of sports music. In practical application, the official use of the organizing committee plays a role in setting off the theme of each session during the time interval between the opening and closing ceremonies and various competitions. (2) Thematic use of specific projects. Compared with the whole event, the application of sports music in a specific event at a certain period of time, such as the application of sports music in the water ballet competition in the Olympic Games, belongs to the thematic application of a specific event. In addition, figure skating and dancesport tournaments are also the time period music for each contestant's specific songs.

Compared two kinds of sports music and its application practice, the former belongs to the specialization and themed sports music, is specialized in order to cater to or highlighting some sports theme creation, the use of the latter belongs to the tie-in sex, for example in figure skating game, players and coaches, according to the selected music to skills relevant to the choreography actions and procedures, etc.

2.3 Sports comprehensive project and timely application

In some multi-purpose comprehensive sports activities, sports music has become a normal use, but compared with the whole activity process, the number of items, sports music is in a subordinate position or play a decorative role. The application form is: (1) Music application in track and field competition activities. In track and field competitions of various schools or societies, the organizing committee or relevant commanding personnel will play athletes' march and so on during the opening and closing ceremonies or the rest time during the competition process. For example, in the sports meeting of all kinds of schools, playing the march in the process of middle- and long-distance running can play a huge incentive effect. The application of music in traditional sports activities. Music with project characteristics, local characteristics or ethnic characteristics will be played before the start of the activity, during the rest period, as well as during the award and the end of the activity, so as to render the atmosphere and attract attention. For example, representative songs of specific ethnic groups will be played at the rest node of the event in ethnic minority sports.

The so-called point in time application is between the links of sports activities, play a role of helping rest, causing attention, link over, not only reduce the fatigue of athletes, audience and relevant service personnel, but also improve the appreciation of the whole activity, make the activity full of lively, joyful, passionate attraction. In addition, in the awarding activities of international events, the national anthems of the winning athletes also play the role of sports music at a specific point in time.

3. THINKING ON THE DEVELOPMENT AND PROMOTION OF SPORTS MUSIC

As one of the crystallizations of the integration of sports art and sports, sports music is gradually moving towards professional development and application in the logic of "sports discourse" of "creating new bodies" and "shaping new citizens" [3].

3.1 Thematic development and promotion

In the football World Cup theme song, for example, sports music in "theme is human nature, form gradually diversification and performance style increasingly internationalization" the art of logic orbit, the law of "pop music and human interaction" [4], in order to "form of expression and style diversification, integration, creative" feature extraction, expression and communication. Accordingly, the thematic development of its thinking: (1) tailored and the use of theme promotion. For example, the famous theme songs of football World Cup, Olympic Games, Asian Games and other large-scale national events are thematic sports music created by professional creative teams, with symbolic significance of sports culture and characteristics of The Times. In a specific period of time, usually from before to after a certain event is held in a certain period of time, all belong to the stage of application and promotion, which plays a role in the publicity of sports activities and the stimulation of related projects. (2) Modification of suitability and application and promotion of sports items. That is, according to the needs of a certain sport or activity, the style, the use of leading instruments and other aspects of the adaptation. For example, in figure skating, the famous Chinese song "Jasmine Flower" is adapted with saxophone or clarinet as the leading instrument, so that it can be consistent with the dance movements in the skating process, so as to create a sports art crystallization that is more consistent with the beauty of movement itself, dance art and music.

The promotion of thematic music generally has a self-conscious promotion significance in the process of certain activities and when it is used as a training track. In the practice of the development of sports music, there is no artificial promotion of marketability, and it is often given priority to public welfare and training assistance.

3.2 Universality development and promotion

According to the relevant laws of sports psychology and music psychology, on the basis of following the "principle of service, the principle of selectivity and the principle of flexibility and diversity", the application of appropriate types of music can stimulate the audience's interest in sports and mediate the "tension and anxiety psychology" of athletes [5]. Combined with all kinds of sports activities and sports music application practice, performance is: (1) large-scale games universality development and promotion. Mainly in the creation and application of athletes' march. With the increase of various sports events, it is necessary to create more universal sports music works, which can be used in appropriate projects or competitions to cheer and shout for athletes and relieve the physical and mental fatigue of service personnel in the process of work. Combined with the current practice, it is urgent to create universal music works for comprehensive events and single events, so as to effectively improve the level of events, related events and sports music. The universal development and promotion of mass fitness activities. To various types of popular fitness of sports dance, a square dance, aerobics, and the rest of the carrier for the sports fitness project research and development of sports music [8], development mode is given priority to with music adapted, for a people like the songs or music, make suitable for the mass movement of DJ version and version of the adaptation and so on, make it can meet the fitness needs more ordinary people.

The promotion of this kind of music, with the actual needs of sports events and mass fitness as the fulcrum, with the organizers' consciousness or cognition as the basic drive, forms a habit of use, in order to create a certain sports culture atmosphere.

3.3 Prescriptive development and promotion

According to the law of sports psychology that "relaxation music regulation after fatigue can promote recovery" [6], prescriptive research and development is carried out to ensure direct support for sports programs and athletes according to the dependent variables of physical health level, difficulty of exercise and change of feeling of exercise of athletes. There are two suggested methods: (1) Rehabilitation music research and development and promotion. Mainly some patients with diseases, accidental injury patients, through the development of appropriate music works to exercise guidance and sports psychological environment to create a combination, guide and guide its scientific, cheerful fitness activities, in order to pursue the recovery of body function. For the elderly, pregnant women, lactation women, as well as some of the body function degradation of occupational disease patients, the development and guidance of targeted training of body parts of aerobics music, is the urgent needs of the current society and relevant groups. (2) Research and development and promotion of music for improving weak physique. With physique, thin physique obesity and chronic disease constitution as the main service object of music research and development activities, through targeted use supportive melody, lyrics and methods, guide the narrator create incentives for activists, beautiful, understanding and support of sports and art environment, psychological environment, develop good exercise habits, strongly health consciousness on the basis of the pursuit, To enjoy the happiness brought by sports and sports music.

Its promotion work is realized in the habitual activities acquired by the masses and used spontaneously or consciously, with pure public welfare and health pursuit as the basic motive and driving force, and has been spread infinitely in the circle of sharing the same disease.

4. CONCLUSION

Sports music is music art, sports, art, such as blend, the crystallization of the development of both the professional development of original works, also has a general adaptation, deductive and the rough editing work, but are based on all kinds of service object demand, satisfy the pursuit of sports, health and sports entertainment needs. However, with the continuous development of The Times and the improvement of the development of mass, mass sports and professional sports, the demand for professional original sports music will continue to rise. More music creation talents are needed to strengthen relevant work and make contributions to the development of sports, sports art and sports music.

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Design of a wireless environmental data monitoring and anti-theft system for agricultural greenhouses based on the Zigbee

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Abstract: In this project, the intelligent agricultural greenhouse control system uses CC2530 single chip microcomputer as the control core, sensing technology as the sensing layer, Zigbee wireless communication technology to ensure reliable data transmission, and automatic control of irrigation, ventilation, temperature control and other functions in the greenhouse can be achieved. The experimental results show that the design of ZigBee-based wireless environmental data monitoring and anti-theft system has stable performance, fast response rate, reliable data transmission and small packet loss rate. Both the accuracy of data monitoring and the accuracy of anti-theft system can achieve efficient and stable data transmission.
Keywords: Intelligent agricultural greenhouse; Single chip microcomputer; Wireless communication; Sensor technology; Monitoring

1. INTRODUCTION

After 2015, on the basis of intelligent control and practice, intelligent agricultural greenhouses will develop towards the direction of more advanced technology and more complete functions. With the continuous combination of agriculture and Internet technology, the planting system of intelligent agricultural greenhouses will be more efficient, multi-functional, intelligent and stable.[1]

The main task of this topic is to use TI company research and development of microcontroller CC2530 as the control core, combined with sensor information acquisition technology, automatic control technology and wireless communication technology, design a constant temperature control, automatic irrigation, automatic fire extinguishing and other functions of the intelligent greenhouse control system. The Zigbee-based wireless environmental data monitoring and anti-theft system designed in this topic can work in manual and automatic control modes. In manual mode, the operator can use the button to give instructions to the coordinator to realize the setting of temperature parameters and irrigation, and can also choose whether to open the anti-theft mode. In automatic mode, the smart greenhouse has an anti-theft system composed of ultrasonic and infrared human body induction. Ultrasonic can detect whether the indoor door is opened and measure its distance to determine whether the door is opened, and infrared human body detection to determine whether someone has passed by.

2. SYSTEM WORKING PRINCIPLE

The system is dominated by CC2530 microcontroller, and the system consists of three main parts: the sensor-side node-terminal, the central node-router, the monitoring center-coordinator. Sensor nodes and central nodes constitute the sensor layer network of Zigbee wireless LAN, various sensor acquisition equipment and terminal acquisition modules form sensor nodes, terminal acquisition modules are mainly distributed in the monitoring area of the star network topology network. The role of the central node (router) is to aggregate and forward the data collected by each sensor node (terminal) to the monitoring center (coordinator). The coordinator exchanges human-machine data through the OLED electronic display, which can display various data in each monitoring area and process the received data. The number of central nodes can be increased on demand to increase the number of forwarding, which can expand the monitoring range of Zigbee network, increase transmission distance, and enhance the relative stability of the network. Once Zigbee nodes find that the parent node has dropped the network, the child nodes search for the network again and seek the optimal node to join and re-enter the network. [2]

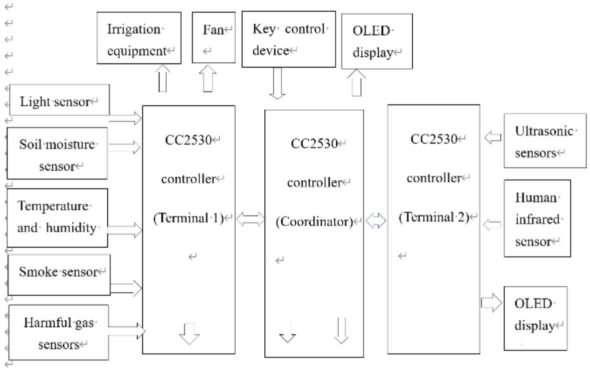

Figure 1. System structure intent

The environmental monitoring system mainly collects the basic data on the light intensity, air temperature and humidity, soil moisture, smoke concentration and harmful gas concentration parameters in the agricultural planting shed in real time through sensors in various terminal equipment, and summarizes the collected environmental information parameters after module conversion, transmits the information to the central control node through the network transmission layer, and transmits the basic information of the crop growth environment obtained by the monitoring equipment of the perceptive layer: soil, humidity, After comparing the lighting with the standard index, the control command is made, and the control command is sent to the controlled device by using the routing node, and the planting system will automatically control the environment to the state of suitable plant growth.

Using the temperature sensor module DHT11 to detect the ambient temperature, the temperature is too high to directly turn on the ventilation equipment to adjust the temperature, when the room temperature reaches the standard, and then realize automatic closure, workers only need to set a simple threshold for growing fruits and vegetables, the rest are automatically completed by the smart shed. The sensor MQ-137 is used to measure the concentration of harmful gases, the voltage value is measured, and the analog signal can be converted into a digital signal by carrying the A/D analog-to-digital converter by the chip itself. The concentration of the collected gas (analog signal) can be converted into a voltage value (digital signal). Determine if the harmful gases in the shed are up to standard. When the harmful gas is about to reach the maximum limit concentration is to give an early warning while turning on the fan to drain the harmful gas. The sensor MQ-2 is used to measure smoke particles in the air, to take alarm measures when the smoke particles reach the set threshold, while closely monitoring the ambient temperature, and immediately turning on all sprinklers to extinguish the fire when the ambient temperature rises to a dangerous state. Using the BH1750FVI digital light-strength sensor, the voltage size is used to determine the light size and see if the light needs to be re-lighted in the shed. The soil moisture sensor monitors the soil moisture to determine whether irrigation is to be performed. Different status indicators are lit at the same time as different operations are carried out in the shed, and the status indicators provide a more intuitive picture of the operation of the greenhouse shed.

Terminal 2 is an anti-theft system, after the user turns on the leave-from-home mode, the control side sends a control instruction, Terminal 2 receives a reply signal, the control end displays a reply signal to say to turn on the security function. Terminal 2 is equipped with keys, status display lights, OLED LCD display, ultrasonic ranging module and human infrared sensor. When someone opens the door and enters, the distance of the door changes instantaneously. The distance value of the HC-SR04 ultrasonic module detects the door is compared with the original data to determine whether the door is open, and if the human infrared sensor measurement value changes, someone breaks in and sends an alarm signal to the background.

Fire prevention and control system is mainly composed of smoke sensors, air temperature and humidity sensors and pump equipment, when a fire, the increase in smoke concentration in the air by MQ-2 smoke sensors accurately captured, using sensors to detect ambient temperature, the fire size is determined by comparing the two sensor values with the original data. After the fire, the use of buzzers to alert staff, while the status indicator LED lights can also reflect the severity of the fire, according to the different fire size drive pump firefighting operations.

3. HARDWARE CIRCUIT DESIGN

The resources used in the CC2530 based on Zigbee wireless environmental data monitoring and anti-theft systems are: ultrasonic sensors and human infrared sensors are available on terminal 2 modules. The ultrasonic transmission pin Trig of the ultrasonic ranging sensor connects to the CC 2530 microcontroller P0-6 port, and the data pin Echo connects the CC2530 microcontroller P0-7 pin. Using the CC 2530 microcontroller comes with a universal timer TIM2, the data pin Echo high-level duration is calculated to calculate how far apart the two are, the human infrared sensor HC-SR501 The module is connected to the CC 2530 microcontroller P0_4/BTN2 port, the role is to detect if anyone broke in, terminal 1 module equipped with DHT11 The DATA pin for the temperature and humidity sensor is connected to the microcontroller P1_6/MOSI pin, and the digital light intensity sensor GY-30 module clock line (SCL) is connected to the CC2530 microcontroller P1_5/SCLK Pin, data cable (SDA) to CC2530 microcontroller P1_4/CSN pin, ADDR address line ground.

The soil moisture sensor, the smoke measurement sensorMQ-2 module and the air quality detection sensor MQ-135 use the ADC function, and since the CC2530 chip only has P0 port support for ADC function, the soil moisture sensor AO output P0_5/ BUT3, the analog output of the smoke sensor MQ-2 is connected to the P0_6 pin of the microcontroller, and the analog output of the air quality detection sensor MQ-135 is connected to the P of the CC2530 microcontroller 0-7 pin. Relay control pump port receiver P1_3, relay control fan port receiver P1_7/MISO, relay control heating rod port receiver P1_2. The buzzer alarm on the coordinator picks up the P0_7 of the microcontroller, and the OLED display connects the P0_0, P1_7/MISO, P1_3, P1_4/CSN. Using timer 1 for data transmission, there are anomalies in the shed such as: security mode on if the system determines that someone broke in, sent a fire or harmful gas content exceeded the threshold, using the CC2530 microcontroller timer 1 capture interruption, suspend all work in the shed and send sound and light alarms to alert the user. [3]

The temperature and humidity sensor module DHT11 temperature measurement accuracy is ± 2 degrees C, humidity measurement accuracy is ±5%RH, temperature measurement range is 0 to 50 degrees C, humidity measurement range is 20% to 90% RH. The soil moisture sensor measurement standard is to set the sensor to 100% when inserted into water, 0 in the exposed air, divided into 100 equitization, the accuracy is ±5%. The MQ-2 smoke sensor and MQ-135 hazardous gas sensor measures the accuracy of ±0 to 80PPM, and the smoke range is 100 to 10000PPM. The ultrasonic sensor HC-SR04 has a measurement accuracy of ±1cm and a measurement range of 2cm to 3m.

4.CIRCUIT DESIGN

This paper mainly shows the core control circuit, as shown in Fig.2. The core board includes an external antenna, an internal crystal circuit and a vibration circuit, a reset circuit and a JTAG/SWD debug download interface, and an RF receiver. The CC2530 is externally connected with crystals of 32 MHz and 32.768 kHz, respectively. The 32 MHz active crystal as a crystal oscillator must use a 32 MHz crystal when using an RF transceiver.

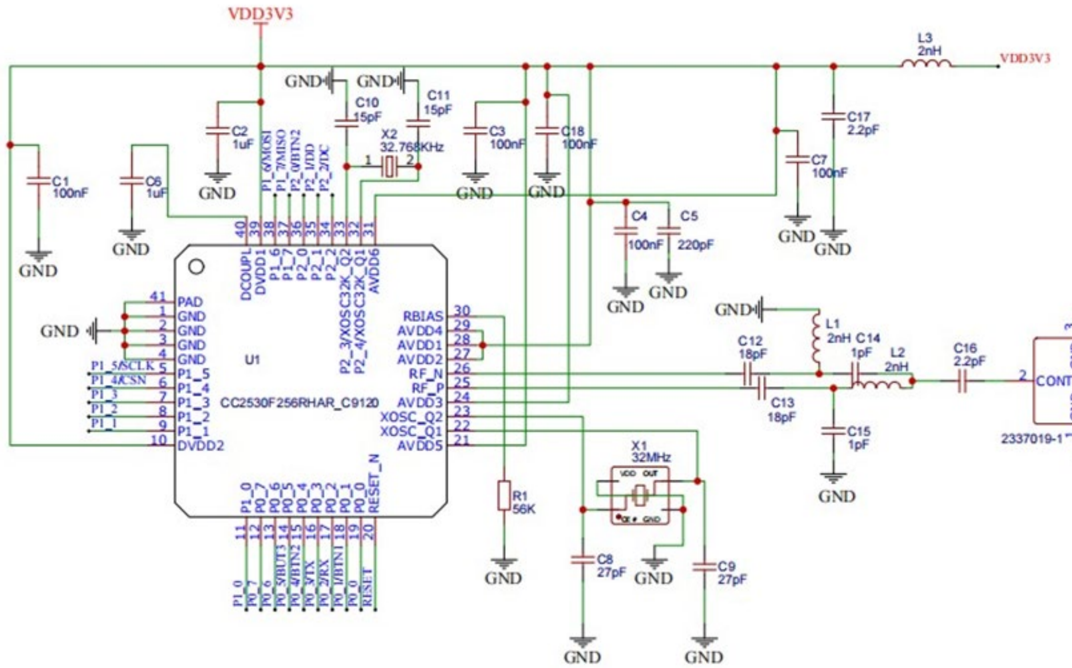

Figure 2. The main circuit diagrams

5.SYSTEM COMMUNICATION PRINCIPLES

The system network connection structure is a star network topology. Star topology: A full-featured network coordinator (Full Function Device for FFD) and other from devices (Reduced Function Device for RFD). The primary responsibility of the coordinator is to create a local area network and control the network, powered by a USB power cord without taking into account excessive power consumption, so the transmit frequency power can be adjusted to the maximum. The coordinator immediately searches for the surrounding network communication channel occupancy, and then selects the relatively suitable channel. Zigbee is based on the IEEE802.15.4 communication protocol, which sets twenty-seven physical information channels, starting from scratch to twenty-six, each with its own central frequency. Sixteen information channels (11-26) are available in China's 2.4GHz free-to-use band. Once the appropriate information channel is selected, search for the environment information in this channel and create a unique PAN identifier to establish a network. PAN identifier - distinguishes network attribution, and each different network has its own unique PAN identifier. When there is data to be sent, the device is awakened from sleep mode, through which the channel accurately obtains the relevant data information of other coordinators within the specified range, selects a reasonable and appropriate PAN identifier, and begins to establish a network link with the coordinator, successfully connects to the network and transmits the relevant data through the service original language stipulated in the protocol stack, and divides the original language into four types: the original language, the confirmation original, the request original language, and the original language of the response. When successfully connected to the network, the requesting networking device receives a sixteen-digit address short code assigned by the coordinator. At this point, the Zigbee network is built, connected from the device to communicate with the full-featured network coordinator.

6. THE FORMATION OF THE ZIGBEE NETWORK

The formation of the Zigbee network consists of two steps: the coordinator initializes the network to create the network, the node searches the network, and joins the network. The process of joining the network from the node is divided into two kinds: joining the parent node network to form the parent and child network node, and connecting the coordinator directly. ZigBee creates a network that typically contains three important components: pan coordinator nodes, router nodes, and endpoints, where the PAN coordinator component is essential.[4]

Coordinator node: The information gathering center of each node, which is responsible for the formation and management of the network. Communication with the upper computer through the sending and receiving segment of the coordinator node. The communication, processing and information emission capabilities of the coordinator are the strongest in ZigBee communications, and even data from the remote-control side can be sent.

Router node: Its main function is to accept forwarding packets and route data. Help child node data forwarding, path search. You can maintain the network, enhance network stability, and increase the distance of data transmission. Helps children who join the network communicate. The router node is the forwarder of the endpoint and the coordinator node, which can realize the data transmission function and become the information baton between the coordinator and the terminal.

Endpoint: Information collection, the endpoint can be directly connected to the coordinator node, or through the router node and the coordinator node.

7. PROGRAMMING

The C language program chosen for the design of this topic is written. The coordinator, router, and terminal must be powered on and system initialization must be performed. Start work after the system initialization is complete. This paper mainly introduces the program design idea of the greenhouse environmental monitoring system. The system is initialized after power is electrically powered on the device, followed by sensor initialization. Next, start testing the environment data for sensor devices. Sensors are prioritized from highest to lowest: temperature and humidity sensors, light sensitivity sensors, soil moisture sensors, and hazardous gas sensors. Each sensor is compared with the set value range to determine whether a signal is sent to start its own adjustment device. The cycle ends when the measurement is within the set value range.

8.CONCLUSION

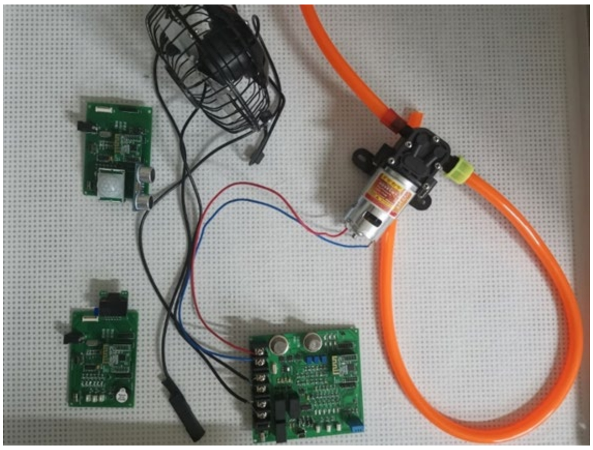

Figure 3. Physical finished product

Based on Zigbee's wireless transmission technology, the CC2530 microcontroller is used as the control core, and a variety of sensors are designed to be miniature intelligent. By designing the self-built protocol stack of data monitoring and anti-theft control system, the performance is stable and can run steadily for more than three days in a row, the response rate is within 0.5 seconds, and the data transmission is reliable, the drop rate is less than 2%. Ultrasonic sensor measurement accuracy within 1cm, harmful gas sensor recognition rate, accuracy of up to 80PPM, whether it is the accuracy of data monitoring or anti-theft system accuracy, can achieve efficient and stable data transmission. The anti-theft system recognition rate is greater than 90%. The physical sample is shown in Fig.3.

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An Improved Collaborative Filtering Recommendation Algorithm in a Cloud Classroom Resource Platform

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Abstract: The paper analyzes and studies the problems of collaborative filtering algorithm when applied to resource recommendation, and proposes an improved collaborative filtering recommendation algorithm. The algorithm takes the idea of user clustering into account and improves it for the problem of data sparsity. On the basis of learning behavior analysis, a personalized recommendation process is designed for the cloud classroom resource platform system, and the application of collaborative filtering-based recommendation algorithm in personalized resource recommendation for online learning is realized.
Keywords: Collaborative Filtering; Resource Recommendation; Cloud Classroom

1. INTRODUCTION

With the continuous development of computer network technology, communication technology and multimedia technology, especially the wide application of these technologies in distance education has promoted the rapid development of modern distance education. At present, online registration system, entrance test system, online learning platform, academic registration management system and examination system have been widely used. However, with the diversification of online learning platforms and the continuous expansion of application scope, learning resources are constantly enriched, and how to choose suitable learning resources from the large number of resources has been troubling users.

Cloud Classroom Resource Platform is a distance education online learning platform developed by our university. Like most online learning platforms, users could only browse resources according to the category of learning resources or their majors, or search resources by specific learning objectives. However, when users' learning objectives are not yet clear and the classification of resources is not precise enough, they can only use the traversal method to find resources, or use the keyword-based search mode to find resources. This makes it difficult to fully and effectively use the learning resources in the cloud classroom platform or to retrieve learning resources that are meaningful to users, which causes a waste of users' personal time and energy. At the same time, due to the imperfection of their own knowledge system, users may choose learning resources blindly, which makes it difficult to achieve the purpose of improving the learning effect [1][2].

Personalized recommendation technology can well solve such problems [3]. This technology establishes user models and resource models and builds personalized recommendation algorithms by analyzing users' own characteristics, learning habits, resource attribute characteristics, and the learning records and learning outcomes of previous users with similar characteristics to provide personalized resource recommendations and personalized learning support services to recommend learning resources that meet their interests or needs [4].

2. COLLABORATIVE FILTERING RECOMMENDATION ALGORITHM AND THE PROBLEMS

2.1 Collaborative Filtering Recommendation Algorithm

Collaborative filtering is a recommendation algorithm widely used in personalized recommendation systems [5]. User-based collaborative filtering recommendation calculates the distance between users based on the degree of preference of different users for the same content, and then recommends content among users who have the same preferences [6]. Collaborative filtering techniques are able to share other people's experience and avoid one-sided content analysis. The recommendation mechanism of collaborative filtering algorithms enables them to deal with unstructured objects. Also collaborative filtering is able to provide recommendations using less feedback information and is more efficient [7]. However, collaborative filtering suffers from cold start and sparsity problems that need to be addressed in practical applications [8].

2.2 Problems with Collaborative Filtering Recommendation Algorithm

(1) Data Scarcity

The recommendation technique of collaborative filtering can help users discover new interests and needs. However, the prerequisite for the technique to produce effective recommendations is sufficient rating data. The number of learning resources on online platforms is large, but the proportion of active users is small compared to registered users, of which only a small proportion rate learning resources. In fact, many users do not have the same resource learning records among themselves, leading the algorithm to waste a lot of time calculating the similarity of users or learning resources, thus generating data sparsity, which is one of the defects of the collaborative filtering algorithm. This situation makes it difficult to generate similarity sets of learning resources quickly and efficiently.

The solutions to the data sparsity problem are as follows: First, the user tag data is used. The tagging data can be the tags given to the learning resources by the authors or uploaders, or the users can tag the learning resources. Second is to use contextual information. That is, the context in which the user is located, such as the user's current stage of study. For the first semester, learning resources containing professional basic knowledge are recommended, and for the last semester, learning resources related to graduation practice and job internship are recommended. Third, for learning resources that users have accessed but not rated, an automatic filling method can be used, i.e., the user's rating of the unrated item is set to a fixed default value, or to the average of other users' ratings of the learning resource.

(2) Cold Start

The cold-start problem arising in the recommendation system is, firstly, in the user-based recommendation algorithm, when a new user is added to the system, it is impossible to find its similar users and thus cannot make a recommendation because the system does not have any learning records of that user. Second, in the learning resource-based recommendation algorithm, when a new learning resource is added to the system, it is impossible to find its similar resources for calculation because the resource does not have any rating record or learning record of the user.

To solve the above cold start problem, one of them is to use the content-based nearest neighbor finding technique. The basic idea is that based on the basic information of user registration or the basic information of learners in the school's academic affairs management system, including learners' professional information, course learning records, interests and specialties, the users are clustered according to the similarity of attributes using clustering technology to find the nearest neighbors of new users from the perspective of user attributes. Second, for newly added learning resources, default ratings are set based on their core content and recommended to users first.

3. AN IMPROVED COLLABORATIVE FILTERING ALGORITHM

3.1 User Information Data Collection

The learning resources on the cloud classroom platform include videos, audios, animations, documents, etc., which involve intensive lectures of course chapters, chapter tutorials, knowledge cases, course exercises, etc. The cloud classroom platform stores basic data of users, such as their education, age, hobbies, work or study experience, etc. It also stores users' learning records or browsing records and their ratings of learning resources. For learning resources that cannot be rated, users' access time to the resources or download records can be used for conversion.

3.2 Create a Matrix of User Ratings of Learning Resources

Firstly, the rating matrix is obtained by analyzing users' learning behaviors and determining users' ratings of learning resources. the rating matrix of M users for N teaching resources is $R(M\times N)$, as shown in Table 1. Where R_{ij} in the i-th row and j-th column represents the interest degree of the i-th user on the j-th teaching resource item.

Table 1 User-resource rating matrix $R(M\times N)$

	I_1		I_j		I_N
U_1	R_{11}	…	R_{1j}	…	R_{1N}
	…	…	…	…	…
U^i	R_{i1}	…	R_{ij}	…	R_{iN}
	…	…	…	…	…
U_M	R_{M1}	…	R_{Mj}	…	R_{MN}

When users register the system, the system will initialize their basic information and interest preferences through the basic information of user registration or the basic data of learners in the school academic affairs management system, which can solve the cold start problem of collaborative filtering algorithm. To address the sparsity problem of collaborative filtering algorithm, we first calculate the sparsity of the scoring matrix. When the sparsity is less than the minimum sparsity value, it means that the users' evaluation matrix of teaching resources is too sparse. At this point, it is necessary to assign initial values to the ratings. According to the characteristics of the cloud classroom system, the weighted average value of all the unrated resources in this major category is taken as the rating, and for the resources not in this major, the rating is 0 in the traditional way.

3.3 User Clustering

Before finding similar users, clustering the users can narrow the scope of finding neighbors, thus reducing the time complexity of the algorithm. According to the characteristics of the cloud classroom system, the users are clustered according to their specialties in the user model. K-means clustering algorithm is simple and flexible, and can dynamically calculate each cluster center. K-means clustering algorithm is chosen to cluster the users in this paper. K-means clustering algorithm steps are as follows.

(1) Input M, N
(2) Randomly select N objects in M as the initial clustering centers and initialize the affiliation matrix
(3) The average vector of each class is used as the new clustering center, and the data objects are reassigned
(4) Repeat step (3) until the maximum number of cycles P is reached
where M is the user data set, N is the specified number of clustering classes, and P is the set maximum number of cycles.

3.4 Find Similar User Set

Calculating the set of neighbors for finding similarity is the most critical step in collaborative filtering algorithm. After clustering the users, the most similar users can be selected as neighbors within the same clustering center to improve efficiency and shorten computing time. Next, the similarity between users is calculated by the similarity algorithm, of which the cosine similarity algorithm and the modified cosine similarity algorithm are the two commonly used similarity calculation methods. After the similarity calculation is completed, the set Z of the n nearest neighbors to this learner is derived.

3.5 Generate Personalized Recommendation

Based on the ratings of resource i by users in the nearest neighbor set Z, the ratings of the resource item by target user a can be predicted, and a sequence of learning resource recommendations is generated to recommend the top N learning resources to the target user.

4. IMPROVED COLLABORATIVE FILTERING ALGORITHM APPLIED IN CLOUD CLASSROOM RESOURCE PLATFORM

The flow of the improved algorithm to perform personalized resource recommendation in the cloud classroom resource platform system is shown in Figure 1. Users log in to the interface of the cloud classroom system, and teachers and students at school can log in to the system according to their own accounts. Unregistered teachers and students who log in for the first time can browse and study resources in the system, and need to complete registration if they want other operations. The system automatically collects the basic information of registered students and teachers, including age, major, hobbies, etc., builds a user information database for every registered student and teacher, calculates the similarity between users using K-means algorithm, then predicts the collection of learning resources that new users may prefer through an improved collaborative filtering algorithm, and sorts the learning resources within the collection by preference, and takes the top N resources as the final recommended collection recommended to users.

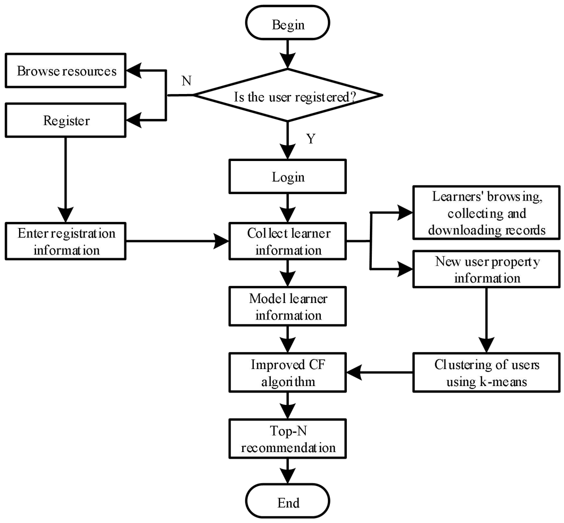

Figure 1 Recommendation process in the cloud classroom system

5. CONCLUSIONS

In order to realize the personalized recommendation function of learning resources in the cloud classroom system designed and developed by our university, this paper designs an improved collaborative filtering algorithm based on the personalized recommendation algorithm to address the cold start problem of new users and new resources at the initial stage of the recommendation system as well as the decrease in recommendation accuracy due to sparse rating data. This algorithm can be better applied to the resource recommendation module of our cloud classroom platform system to improve the efficiency and accuracy of personalized learning resource recommendation.

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Research on Scenario-based Exploratory Software Testing Method

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Abstract: This paper proposes an iterative scenario-based exploratory software testing method based on traditional testing methods and combined with the characteristics of exploratory software testing model. The method focuses on the analysis of running scenarios, iteratively determines the direction of subsequent testing based on the running scenarios and relevant test points, and simultaneously performs test analysis design and test execution to improve testing efficiency.

Keywords: Software Testing; Exploratory Software Testing; Running Scenarios

1. INTRODUCTION

In traditional testing, testers are usually required to write test plans and test cases according to the requirements or design requirements during the test planning stage, but it is difficult to fully understand a piece of software before we actually touch it, so the test plans and test cases written may not be very actionable. In addition, software testing analysis often focuses too much on the decomposition of test requirements and lacks a systematic and holistic analysis of the operation of the software, which is detrimental to the quality assurance of the software. Based on this, this paper proposes an iterative scenario-based exploratory software testing approach to provide an analytical thinking path for software testing using an exploratory approach.

In 2003, James Bach gave a broad definition of exploratory testing, which is simultaneous learning and simultaneous test design and execution [3]. Later in 2008, Cem Kaner gave a more complete definition of exploratory testing, where exploratory software testing is a testing style that emphasizes personal freedom and personal responsibility for testing, constantly optimizing the quality of the tester's work, and viewing test learning, test design, test execution, and test result parsing as mutually supportive activities that run in parallel throughout the project [4]. The model of exploratory software testing is abbreviated as CPIE, which means collation, prioritization, investigation and experimentation [5] [6]. The CPIE process is a cyclical process [7]. In the exploratory testing process of software, the collection and prioritization of information is the premise of test analysis, which is conducive to strengthening the systematic understanding of the software under test and improving the relevance of subsequent test analysis, while test analysis and implementation are mutually driven and improved processes [8].

2. SCENARIO-BASED EXPLORATORY SOFTWARE TESTING APPROACH

The process of scenario-based exploratory software testing is shown in Figure 1. The first three phases are described separately below.

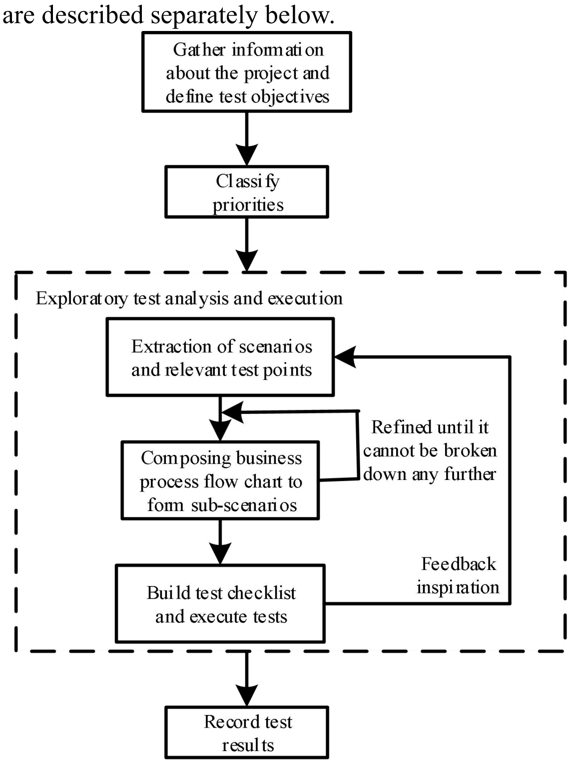

Figure 1 Scenario-based exploratory software testing process

2.1 Information Collection

The first step in the exploratory software testing mindset is collection, i.e. upon receiving a test task, the tester first needs to gather all information about the software under test, such as project information, the testing objectives to be achieved, etc.

2.1.1 Project information

Project Information can generally be obtained from R&D documents such as software development proposal reports, development requirements, project task statements, software requirement specifications, etc. However, exploratory test analysis places more emphasis on communication between testers and project stakeholders (e.g. users, software owners, project managers) to obtain project-related information, such as the users of the software, their likely usage behavior, their points of interest and purpose of use, software importance levels, schedule nodes, test environments, software reuse information, explicit testing requirements of stakeholders, project-related personnel information, etc.

The project information obtained is an important input for the subsequent prioritization and test analysis. From the information collected and the communication with the project stakeholders, we can often find out the typical usage scenarios and risk points of the software, so as to clarify the focus of the test analysis.

Project information should be obtained on an ongoing basis throughout the testing lifecycle, and test objectives, prioritization and test analysis should be clarified or updated based on the project information obtained in real time.

2.1.2 Project testing objectives

Project testing objectives generally consist of two aspects: schedule objectives and quality objectives. Based on the information obtained from the project and the communication with the project stakeholders, the tester needs to define what the stakeholders need the test to achieve, i.e. to define when the test will be completed and at what quality.

Progress targets can be defined in relation to the project development plan. Quality objectives can be considered in terms of whether the requirements are met, whether user standards are met, and whether major defects from user feedback have been resolved. However, the quality objectives should be easily quantifiable, with reference to quantitative indicators such as use case density, number of defects per 1,000 lines of code, requirement coverage, logic coverage, etc., and with reference to historical metrics of projects with the same attributes for analysis and evaluation of quantitative indicators.

Testing objectives can be decomposed according to the actual situation, for example, according to the development progress and delivery nodes of different features of the software under test, different progress objectives can be established, and according to the importance and reuse of different features of the software under test, different quality objectives can also be established, which can provide a basis for the subsequent prioritization of tests and the focus of test analysis.

2.2 Classifying Priorities

Once the information has been collected, the second process in the exploratory software testing mindset is the prioritization process. In other words, testers need to prioritize the software under test. The prioritization can be done in terms of project cycle, importance of modules or features, software maturity and testing objectives.

(1) Project cycle: the traversal of basic scenarios can be a high priority for short-cycle projects; special scenarios and deeper excavation of abnormal scenarios can be a high priority for long-cycle projects.

(2) Importance level of modules or features: the importance level of modules or features can be determined according to the priority of the user's main applications and requirements, with modules or features with a high importance level being given a high priority.

(3) Software maturity: the user requirements of the new part should be treated as high priority, and key analysis and testing should be done in the new part, i.e. strengthening in-depth testing; the analysis and testing of special scenarios and abnormal scenarios should be strengthened in the inherited part, as high priority for the inherited part.

(4) Testing objectives: according to the determined testing objectives, the priorities can be adjusted in the above dimensions to ensure that the overall testing objectives are achieved.

2.3 Scenario-based Exploratory Software Test Analysis and Execution

Once the testers have prioritized, they move on to the subsequent stage of the exploratory software testing mindset - test analysis and execution - where the testers need to analyze the software they have identified for testing, predict its likely output, and execute the test.

The stance of exploratory software test analysis is that testers really use the software under test in conjunction with scenarios to understand the software under test, because only with a certain understanding and mastery of the software under test can the software be tested efficiently, therefore, exploratory software test analysis focuses on the analysis of software running scenarios. Test analysis of software scenarios is an iterative process of moving from the whole to the local, and can begin by treating the entire test object as a large system and carrying out exploratory analysis from a system perspective.

Firstly, the information collected and the prioritization can be used as important input for the test analysis. From the information collected and the user communication, we can obtain the users of the software, and then explore and analyze their interests and purposes of use, explore all the explicit and implicit usage requirements and possible user behavior from the user's point of view, and explore and analyze potential system damage, i.e. dangerous events that may cause software failure, so as to refine the typical application scenarios and core test points, and determine the basic ideas of the test.

Then, based on the typical application scenarios, the system business flow diagram is sorted out by combining the external inputs and outputs of the whole system, and the main input and output business points in the business flow diagram are analyzed for their possible user behavior, system events and potential system damage. The different events, their triggering and processing results form a stream of events; sorting through the main lines of the scenario, the basic stream can be determined; at the same time, around the basic stream, combined with the potential system disruptive behavior, to form an alternative stream of events. For each sub-scenario, the test points are decomposed until they cannot be broken down any further. The decomposition of each sub-scenario can be analyzed in terms of testing objectives, input descriptions, input sources, trigger methods, test points, point decomposition, observation points and expected outputs.

Then, the test checklist is constructed and the tests are executed. The feedback from the test results is used to inspire the generation of new scenarios and new test checkpoints.

Finally, the test results are recorded and used for feedback, learning and to guide subsequent testing, thus realizing a continuously iterative, checkpoint-traceable testing operation.

3. CONCLUSIONS

Traditional test analysis can sort out each requirement checking point based on the existing business requirements and acceptance conditions, but lacks a systematic analysis of the overall software running. As testers gather project information, prioritize, decompose and analyze software running scenarios, and gain a deeper and deeper understanding of the software, they will discover which scenarios and technical points are the most important and riskiest in the software operation process, and adjust the testing ideas or methods according to the analysis results, and supplement the testing scenarios and test points, thus obtaining more high-value test cases. This will make testing more efficient.

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