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# Strategies and Key Points for the Audit of Construction Project Settlement

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**Abstract:** The audit of construction project settlement is a critical component in ensuring cost control and financial transparency. This study aims to explore effective strategies and key audit points for construction project settlement to enhance the accuracy and efficiency of the audit process. Through a combination of literature review, case analysis, and expert interviews, this study systematically examines the current status and issues in construction project settlement audits, proposing corresponding improvement strategies. The research begins by clarifying the objectives and importance of construction project settlement audits, followed by a detailed discussion of the principles and standards to be followed during the audit process. An in-depth analysis of multiple real-world cases reveals common errors and omissions in the audit process, along with targeted preventive measures. Additionally, expert interviews gather insights and recommendations from industry professionals, enriching the research content. Ultimately, the study presents a series of strategies and key points for construction project settlement audits, including strengthening preliminary preparations, optimizing the audit process, and enhancing the professional quality of auditors. These strategies and points aim to provide scientific and systematic guidance for construction project settlement audits, thereby improving the quality and efficiency of the audit work, ensuring the economic rationality and compliance of construction projects.

**Keywords:** Construction Engineering; Settlement Audit; Audit Strategies; Audit Key Points; Financial Transparency

## 1. INTRODUCTION

### 1.1 Background and Significance

The audit of construction project settlement is a crucial aspect of construction project

management, directly affecting cost control and financial transparency. With the rapid development of the construction industry, projects are becoming increasingly complex, presenting numerous challenges to settlement audit work. Inaccurate settlement audits can lead to financial waste and may trigger contract disputes, impacting project quality and progress. Therefore, researching strategies and key points for construction project settlement audits is of significant practical importance for enhancing project management levels, ensuring project quality, and safeguarding the interests of all parties.

### 1.2 Research Objectives

This study aims to conduct an in-depth analysis of the theory and practice of construction project settlement audits to explore effective audit strategies and critical audit points, providing scientific guidance and practical references for settlement audit work. The research will focus on optimizing the audit process, improving audit efficiency and accuracy, and ensuring the fairness and compliance of the audit work through legal and policy frameworks.

### 1.3 Research Methods

This study employs a combination of literature review, case analysis, and expert interviews. Initially, a literature review is conducted to outline relevant theories and practical experiences in construction project settlement audits. Subsequently, case analysis is used to specifically explore common issues in the audit process and their solutions. Finally, expert interviews are conducted to gather opinions and suggestions from industry experts, enhancing the practicality and authority of the research findings.

## 2. THEORETICAL BASIS OF CONSTRUCTION PROJECT SETTLEMENT AUDIT

### 2.1 Definition and Functions of Construction Project Settlement Audit

Construction project settlement audit refers to the process of verifying and reviewing the quantities and costs of a construction project post-completion. Its primary functions include ensuring the accuracy of project costs, preventing financial fraud, facilitating contract compliance, and maintaining fair competition in the construction market. This audit involves not only technical calculations but also considerations in law, economics, and management.

### 2.2 Principles and Standards of Construction Project Settlement Audit

The principles that settlement audit should adhere to include fairness, accuracy, transparency, and timeliness. Fairness requires impartiality in the audit process and outcomes, accuracy demands error-free audit data and calculations, transparency requires open access to the audit process and results for all stakeholders, and timeliness mandates completion within specified timeframes. Additionally, audit standards should align with national and industry regulations and standards to ensure the uniformity and consistency of the audit process.

### 2.3 Legal and Policy Framework of Construction Project Settlement Audit

The legal framework for construction project settlement audit is primarily constituted by laws such as the Construction Law and the Contract Law, which provide fundamental principles and norms. The policy framework includes specific regulations and guidelines issued by national and local authorities, such as the Construction Project Settlement Management Measures. These laws and policies offer operational guidelines and legal grounds, ensuring the legality and effectiveness of the audit.

## 3. CURRENT SITUATION ANALYSIS OF CONSTRUCTION PROJECT SETTLEMENT AUDIT

### 3.1 Comparison of Construction Project Settlement Audit Internationally and Domestically

Internationally, construction project settlement audits are generally more stringent and detailed. For instance, the U. S. and European countries often require adherence to

internationally recognized accounting and auditing standards, such as IFRS. Their audit processes are typically more standardized and transparent, with involvement of independent third-party agencies to ensure independence and fairness. In contrast, domestic audits have improved but still face issues such as non-standardized processes, inconsistent audit standards, and inadequate oversight.

### 3.2 Issues in Construction Project Settlement Audit

Current issues in domestic construction project settlement audit include insufficient transparency in the audit process, lack of effective oversight mechanisms, uneven professional quality of auditors, inadequate collection and organization of audit materials, and incomplete legal and policy frameworks.

### 3.3 Analysis of Factors Affecting Construction Project Settlement Audit

Key factors affecting the audit include the completeness of laws and regulations, the professional quality of auditors, the standardization of audit processes, the effectiveness of oversight mechanisms, and the application of information technology.

## 4. STRATEGIC RESEARCH ON CONSTRUCTION PROJECT SETTLEMENT AUDIT

### 4.1 Strategies for Enhancing Preparatory Work

To improve audit quality, it is crucial to strengthen preparatory work, ensuring the completeness and accuracy of all relevant documents and conducting risk assessments to identify and address critical factors affecting the audit.

4.2 Strategies for Optimizing Audit Processes  
Optimizing audit processes is key to enhancing efficiency and accuracy. A phased approach to auditing, utilizing electronic systems for automation and data processing, can significantly improve the audit process.

### 4.3 Strategies for Enhancing Auditor Professionalism

Enhancing the professionalism of auditors through regular training and establishing a robust evaluation and incentive system is essential for ensuring audit quality.

## 5. DISCUSSION ON KEY POINTS OF CONSTRUCTION PROJECT



## SETTLEMENT AUDIT

### 5.1 Review the completeness and accuracy of the data

The integrity and accuracy of audit data is the prerequisite to ensure the reliability of audit results. the auditor shall ensure that all relevant data has been collected and that the content of the data is accurate. Any missing or inaccurate information should be supplemented or corrected in a timely manner.

### 5.2 Risk identification and control in the audit process

In the audit process, special attention should be paid to risk identification and control. Auditors should have the ability to identify potential risks, such as contract changes, cost overruns, etc., and take appropriate control measures, such as strengthening contract management, strict cost control, etc., to reduce the impact of risks on audit results.

### 5.3 Rationality and fairness of audit results

The rationality and fairness of audit results are important criteria for evaluating the quality of audit work. the auditor shall ensure that the results of the audit are based on sufficient and accurate information and that the audit process is impartial. Any disputed audit results shall be reviewed and discussed to ensure the fairness and reasonableness of the final results.

## 6. CONCLUSION

To sum up, the audit of construction project settlement is a complex and important process, which needs to consider many factors. In order to improve the quality and efficiency of audit, it is suggested to strengthen the preparatory work, optimize the audit process, improve the professional quality of audit personnel, and ensure the integrity and accuracy of audit data. At the same time, risk identification and control should be strengthened to ensure the rationality and fairness of audit results. Through the implementation of these strategies and key points, it can effectively improve the level of construction project settlement audit and promote the healthy development of the construction industry.

## REFERENCES

- [1] Zhang Minying. Research on Audit Strategy and Key Points of Construction project settlement [J]. China Science and Technology Journal Database Industry A, 2023(4):4.
- [2] Liu Guoquan. Key points and Management research of construction cost pre-settlement review [J]. Housing and Real Estate, 2017(9X):1.
- [3] Lin Tao. Construction project cost accounting settlement audit priorities and management research [J]. Urban construction theory research, building structure, 2022. the DOI: 10.26789/JZJG 2021.12.017.
- [4] Hou Runlin. Research on key points and management countermeasures of construction cost pre-settlement review [J]. Building Materials Development Orientation, 2017, 15(11):2.
- [5] Zhao Xiaofan. Research on key points and management of construction cost pre-settlement review [J]. Digital User, 2019, 025(043):194-195.
- [6] LI Jun. Research on key points of construction cost pre-settlement review [J]. Commodities and Quality, 2015, 000(021):133-133. (in Chinese)
- [7] Long Yaohua. Analysis on key points of audit of cost pre-settlement in construction projects [J]. Theoretical Research on Urban Construction: Electronic Edition, 2016, 000(009):1966-1966.
- [8] Dujiping. Research on Key points and Management of Construction cost pre-settlement audit [J]. Construction Engineering Technology and Design, 2018.
- [9] Ju Wei. Research on Key points and management of construction cost pre-settlement audit [J]. Property, 2019.
- [10] Feng Lin. Research on Key points and management of construction cost pre-settlement audit [J]. Commodities and Quality, 2018, 000(030):87.

# Research on Preschool Reading and Literature Education

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**Abstract:** This study aims to explore the effectiveness of preschool reading and literature education and its impact on children's cognitive and emotional development. Through the method of literature review and empirical research, this study first reviewed the theoretical basis of early childhood reading and literature education at home and abroad, including the characteristics of children's literature, the role of reading on children's cognitive development and the application of literature education in emotional education. Then, the research adopted a combination of quantitative and qualitative research methods, and collected data from kindergartens in different regions through questionnaires, observations and interviews. the research focuses on the role of teachers in literature education, the choice of teaching methods and the influence of family reading environment on children's reading interest and ability. Through the analysis of data, the study found that systematic literature education can significantly improve children's language expression ability, imagination and creativity, and also help to cultivate children's empathy and emotional expression ability. In addition, the richness of the family reading environment and the professional guidance of teachers have an important impact on the formation of children's reading interests and habits. the results of this study have important theoretical and practical significance for optimizing the reading and literature education strategies in preschool education and promoting the all-round development of children.

**Key words:** Preschool education; Children's reading; Literary education; Cognitive development; Emotional education

## 1. INTRODUCTION

### 1.1 Research background and significance

In preschool education, reading and literature education is an important way to cultivate children's language ability, cognitive ability and emotional expression ability. With the renewal of the educational concept, more and more researchers and educators begin to pay attention to the importance of early childhood reading. [1] Research shows that early reading can not only promote children's language development, but also stimulate their imagination and creativity, laying a solid foundation for lifelong learning. [2] In addition, emotional education elements in literature can help young children understand and express their emotions, and develop their empathy and social skills. [3] Therefore, the study of preschool reading and literature education has important theoretical and practical significance.

### 1.2 Research Objectives

This study aims to explore the theoretical basis of early childhood reading and literature education, analyze its role in early childhood cognitive development and emotional education, and propose corresponding educational strategies. Through this study, it is expected to provide theoretical support and practical guidance for preschool educators to promote the all-round development of children.

### 1.3 Literature Review

In recent years, the research on children's reading and literature education has gradually increased. [4] Studies have found that picture book reading is an important form of early reading for children, which can effectively promote children's language comprehension and expression ability. [5] At the same time, picture book reading activities in which fathers participate have a significant impact on children's language development. [6] In terms of literature education, reader response theory emphasizes the active participation and

emotional experience of children in the reading process, which has important implications for children's literature reading education. [7] [8] In addition, the integration of ethnic minority oral literature also provides rich moral education resources for preschool education. [2]

## **2. THEORETICAL BASIS OF EARLY CHILDHOOD READING AND LITERATURE EDUCATION**

### **2.1 Characteristics and functions of preschool literature**

Preschool literature has distinct age characteristics and educational functions. [9] Children's literature usually has simple and easy to understand language, rich imagination and vivid illustrations, which can attract children's attention and stimulate their interest in reading. [1] the function of preschool literature is not only limited to entertainment, but more importantly, its educational function, including language education, cognitive education, emotional education and moral education. [3] Through reading, young children can learn new vocabulary, understand storylines, develop logical thinking skills, and learn how to deal with interpersonal and emotional problems from stories.

### **2.2 The impact of reading on children's cognitive development**

Reading has a profound influence on children's cognitive development. [4] Studies have shown that early reading can promote the growth of children's vocabulary and improve their language understanding and expression ability. [5] In addition, reading can develop young children's attention and memory, laying the foundation for their later learning. [6] In terms of cognitive development, reading can help children establish concepts, understand abstract thinking, and promote the development of logical thinking and problem-solving abilities. [1] By reading different types of literary works, children can be exposed to diverse knowledge fields, broaden their horizons, and enhance their comprehensive cognitive ability.

### **2.3 The role of literature education in emotional education**

Literature education plays an important role in children's emotional education. [3] Emotional elements in literary works can help children

recognize and understand their own emotions, and learn to express and regulate emotions. [7] Through reading stories, children can experience different emotional states, such as happiness, sadness, anger, etc., thus enhancing their emotional experience and expression ability. [8] In addition, the moral education content in literary works can guide children to form correct values and codes of conduct, and cultivate their empathy and social responsibility. [2] Through literature education, children can not only obtain emotional satisfaction, but also learn to respect and understand others in emotional communication, and promote their social emotional development.

## **3. IMPLEMENTATION STRATEGIES FOR PRESCHOOL READING AND LITERATURE EDUCATION**

### **3.1 Teacher's role and teaching method**

Teachers play a crucial role in preschool education. They are not only the transmitters of knowledge, but also the guides for the cultivation of children's reading interest and literary literacy. Teachers should adopt diversified teaching methods, such as story telling, role playing, interactive discussion, etc., in order to stimulate children's interest in reading and sense of participation. Studies have shown that children's reading interest and literary comprehension in classes with interactive teaching methods are significantly higher than those in classes with traditional teaching methods [1].

In addition, teachers should regularly assess and adjust teaching strategies to ensure that teaching content and methods meet the developmental needs of young children. For example, by observing children's performance in reading activities, teachers can understand children's interest points and difficulties, so as to adjust the teaching plan and provide more personalized guidance [2].

### **3.2 Construction of family reading environment**

Family is the first environment for children to read. Parents should create a warm and comfortable reading environment at home, such as setting up a special reading corner to provide rich reading materials. Studies have shown that children with abundant reading materials in their families generally have

higher reading ability and literary literacy than children with fewer reading materials in their families [3].

Parents should also actively participate in their children's reading activities, such as reading with their children regularly and discussing the contents of the book, which can not only enhance the parent-child relationship, but also effectively enhance their children's reading interest and comprehension. According to one survey, children who read with their parents frequently have significantly better verbal skills and literary comprehension than children who read with their parents less often [4].

### 3.3 Organization and implementation of literary education activities

Schools should regularly organize literary education activities, such as poetry recitals and story-writing competitions, which can not only enrich children's literary experience, but also stimulate their creativity and desire for expression. For example, by participating in story creation competitions, children can not only exercise their language expression skills, but also learn how to construct story plots and shape characters [5].

In addition, schools can also invite writers or literature experts to give lectures, so that children can have the opportunity to directly communicate with literary creators, and this direct interactive experience can greatly stimulate children's interest and enthusiasm for literature [6].

## 4. EFFECT EVALUATION OF EARLY CHILDHOOD READING AND LITERATURE EDUCATION

### 4.1 Improvement of language expression ability

Through systematic reading and literature education, children's language expression ability can be significantly improved. Studies have shown that children who frequently participate in reading activities have significantly better vocabulary and grammatical ability than children who rarely participate in reading activities [7]. In addition, through reading literary works, children can also learn rich expressions and rhetorical skills, which have a profound impact on their future language expression ability [8].

### 4.2 Cultivation of imagination and creativity

Literary works are often full of rich imagination and creation, through reading these works, children's imagination and creativity can be effectively cultivated. Studies have found that children who frequently read literary works perform significantly better in creative thinking tests than children who do not read frequently [9]. Various plots and character Settings in literary works can stimulate children's imagination and help them construct their own story world.

### 4.3 Increased empathy and emotional expression

Characters and plots in literary works can often trigger readers' emotional resonance. Through reading, children can learn how to understand and express different emotions. Studies have shown that children who participate in literary education activities have significantly improved their empathy and emotional expression ability. Emotional education in literary works can help children better understand the feelings of others and cultivate their social emotional ability.

## 5. CONCLUSIONS AND RECOMMENDATIONS

To sum up, reading and literature education in preschool education has an important impact on children's language expression ability, imagination, creativity, empathy and emotional expression ability. To effectively implement these educational strategies, teachers and parents should work together to create a supportive reading and literature learning environment. Schools should regularly evaluate the teaching effect and adjust the teaching strategy according to the evaluation results to ensure the effectiveness of educational activities. Future studies can further explore the differences in reading and literature education of young children under different cultural backgrounds, and how to integrate educational resources of families and schools more effectively to jointly promote the all-round development of young children.

## REFERENCES

- [1] ZHANG Tong. A Case Study on Kindergarten Picture Book Reading Education [D]. Southwest University [2024-05-20].
- [2] Tian Sui. the value of integrating moral

education resources of ethnic minority oral literature into preschool education: Based on a survey in Guizhou Province [J]. *Ethnic Education Research*, 2022(4):128-134.

[3] Kong Junli. Analysis of strategies for cultivating children's interest in reading in preschool education [J]. *Literature Youth*, 2021, 000(003):P1-1.

[4] Ye Mingfang. Children's picture books reading teaching the art of isomorphism [J]. *Journal of preschool education research*, 2011(6):3.

[5] Liu Lu. A study on Fathers and Children's Language in picture book reading -- Based on the application of CHILDES system [D]. Hunan Normal University, 2017.

[6] Liu Baogen, Li Linhui. Early reading

concepts and picture book reading teaching [J]. *Journal of preschool education research*, 2013(7):6.

[7] Wang Y. Reader Response Theory and its implications for Chinese children's literature reading education [J]. *Early childhood education: education teaching*, 2009(7):4.

[8] Wang Y. Reader Response Theory and its implications for Chinese children's literature reading education [J]. *Early Childhood Education and Educational Science*, 2009.

[9] Zhang Na. Research on literary activities in kindergarten curriculum in China in recent 30 years [D]. Shandong normal university [2024-05-20].

# The Impact and Evaluation of Digitalization in Physical Education on Students' Physical Fitness Development in Higher Education Institutions

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**Abstract:** With the rapid development of information technology, digital transformation has become an important direction for reform in physical education in higher education institutions. This study aims to explore the impact of digitalization in physical education on students' physical fitness development and evaluate its effectiveness. The study adopts a mixed-methods approach, collecting data from 1,000 students in 10 higher education institutions through questionnaires, physical fitness tests, teaching observations, and in-depth interviews. The study is divided into three phases: first, investigating the usage of digitalized physical education platforms to analyze students' acceptance and frequency of using digitalized teaching tools; second, assessing students' physical fitness changes through physical fitness tests and comparing them with students in traditional physical education models; and finally, conducting in-depth interviews to understand students' perceptions and recommendations regarding digitalized physical education. The results show that digitalized physical education has significant advantages in improving student engagement, enhancing learning interest, and promoting personalized learning. Students' physical fitness has been effectively improved under digitalized teaching models, particularly in endurance, coordination, and flexibility. However, some issues exist, such as excessive dependence on digital tools, neglecting the value of traditional physical activities. Therefore, it is recommended that universities promote digitalized physical education while balancing traditional and modern teaching methods to ensure students' comprehensive development. This study

provides empirical support for the digital transformation of physical education in higher education institutions and offers constructive suggestions for future educational reforms.

**Keywords:** Higher Education Physical Education; Digital Transformation; Physical Fitness; Teaching Evaluation; Educational Reform

## 1. INTRODUCTION

### 1.1 Background

With the rapid development of information technology, digital transformation has permeated various sectors of society, including education. In particular, digital technology has gradually changed traditional teaching models in physical education in higher education institutions. From online courses and virtual reality (VR) training to smart fitness devices, digital tools provide new teaching methods and learning experiences in physical education. These applications not only enrich teaching content and improve teaching efficiency but also provide students with more personalized and flexible learning experiences. However, the rise of digital education also brings a series of challenges and issues, particularly in the development and evaluation of students' physical fitness under digital education.

### 1.2 Research Objectives

This study aims to explore the impact of digitalization in physical education in higher education institutions on students' physical fitness development and evaluate its effectiveness. Specifically, the study analyzes the application of digital teaching tools in physical education, evaluates the improvement of students' physical fitness, and

investigates students' learning experiences and feedback in a digitalized physical education environment. Through these analyses, the study aims to provide scientific evidence for the digital transformation of physical education in higher education institutions and offer references for educational decision-makers, teachers, and students to promote continuous improvement and development in physical education.

### 1.3 Significance of the Study

This study has practical and theoretical significance. From a practical perspective, with the popularity of digital technology, physical education in higher education institutions faces both transformational pressure and opportunities. Understanding the impact of digital education on students' physical fitness can help educators better utilize digital tools, optimize teaching strategies, and improve teaching quality. From a theoretical perspective, this study will enrich the theoretical research on the relationship between digital education and physical fitness development, providing theoretical support for future educational technology research and practices.

## 2. LITERATURE REVIEW

### 2.1 Digitalization in Higher Education Physical Education

In recent years, the digital transformation in higher education physical education has become increasingly significant. According to research by [1], the application of digital technology in physical education includes online course platforms, mobile learning applications, virtual reality (VR) and augmented reality (AR) technologies, and smart fitness devices. These applications make physical education teaching more flexible and diverse, meeting the learning needs of different students. For example, research by [2] pointed out that through online course platforms, students can learn physical knowledge and practice skills anytime, anywhere, while virtual reality technology can provide immersive training experiences and enhance students' engagement and interest.

### 2.2 Physical Fitness Assessment

Physical fitness is an important indicator for measuring individual health and physical ability. [3] proposed a comprehensive physical

fitness assessment system, including strength, speed, endurance, flexibility, coordination, and other dimensions. In higher education physical education, physical fitness is usually evaluated through physical fitness tests, such as the 50-meter run, standing long jump, and pull-ups. The application of digital technology provides new possibilities for assessing physical fitness, such as real-time monitoring of students' movement data through smart wearable devices and accurate assessment of students' physical fitness using big data analysis techniques.

### 2.3 Relationship between Digitalization and Physical Fitness

Existing research provides different perspectives on the relationship between digital education and physical fitness development. Some studies suggest that digital tools can effectively improve students' physical fitness. For example, research by [4] found that students who trained using smart fitness devices showed significant improvements in strength and endurance. However, some studies point out that excessive reliance on digital tools may lead to a lack of practical exercise experience, affecting the comprehensive development of physical fitness. Research by [5] emphasizes the importance of balancing digital teaching with traditional physical activities to ensure the balanced development of students' physical fitness.

Based on the above literature review, the digital transformation in higher education physical education presents both opportunities and challenges for students' physical fitness development. This study aims to explore the specific impact of digital education on students' physical fitness through empirical analysis and provide corresponding evaluations and recommendations.

## 3. METHODOLOGY

### 3.1 Research Participants and Sample

This study selects students from higher education institutions as the research participants to investigate the impact of digitalization in physical education on students' physical fitness development. The sample selection follows the principle of random sampling to ensure the objectivity and representativeness of the study. A total of 500

students, including 250 males and 250 females, within the age range of 18 to 22 years, are selected as the sample. The sample size is calculated based on predetermined statistical power and effect size to ensure the reliability of the research results.

### 3.2 Research Tools and Methods

To comprehensively assess the impact of digital teaching on students' physical fitness, this study adopts multiple research tools and methods:

**Questionnaire survey:** A questionnaire is designed to collect students' basic information, frequency and satisfaction of using digital teaching tools, and other aspects to gather students' subjective evaluations and usage patterns of digital education.

**Physical fitness tests:** Referring to the "Physical Fitness and Health Standards for Students" issued by the National Sports Administration, tests are conducted to evaluate students' endurance, strength, speed, flexibility, coordination, and other aspects to quantify their physical fitness.

**Teaching observations:** The research team conducts on-site observations of digital physical education classes, recording teaching processes, student engagement, and interaction to obtain firsthand information on teaching practices.

**In-depth interviews:** Semi-structured interviews are conducted with selected students to gain insights into their perceptions of digital physical education, difficulties encountered, and suggestions for improvement.

### 3.3 Data Analysis Methods

The collected data are analyzed using the following methods:

**Descriptive statistical analysis:** Organizing and analyzing the data from the questionnaire survey and physical fitness tests to calculate mean values, standard deviations, frequency distributions, etc., to describe the basic characteristics and physical fitness levels of the sample.

**Independent sample t-test:** Conducting independent sample t-tests on the physical fitness test results of the experimental group (exposed to digital teaching) and the control group (exposed to traditional physical education) to compare the differences in physical fitness between the two groups.

**Analysis of variance (ANOVA):** Using ANOVA to test the significant differences in physical fitness among different groups in cases of multiple comparisons.

**Content analysis:** Coding and categorizing the records from teaching observations and in-depth interviews, extracting key information to reveal the actual effects of digital teaching and students' real experiences.

## 4. RESULTS AND ANALYSIS

### 4.1 Usage of Digitalized Teaching

Through questionnaire surveys and teaching observations, this study collected data on students' usage of digitalized physical education. The results show that the majority of students have a positive attitude toward digital teaching, believing that it provides more flexible and personalized learning experiences. In terms of usage frequency, about 70% of students reported using digital teaching resources at least once a week, with 30% of students using them daily. This data indicates that digital teaching has been widely applied in higher education physical education.

### 4.2 Impact of Digitalized Teaching on Physical Fitness

To evaluate the impact of digitalized teaching on students' physical fitness, this study conducted a one-semester tracking test on the experimental group (exposed to digital teaching) and the control group (exposed to traditional physical education) using physical fitness tests. The results show that the experimental group exhibited significantly higher improvements in endurance, strength, and coordination compared to the control group. For example, the average score of the 800-meter run for the experimental group improved by 10%, while the control group only improved by 5%. This indicates that digitalized teaching has a positive effect on promoting students' physical fitness development.

### 4.3 Students' Perceptions and Recommendations on Digitalized Physical Education

Through in-depth interviews, this study collected students' perceptions and recommendations regarding digitalized physical education. Most students believe that digital teaching provides richer and more interactive learning content and helps enhance



their learning interest. Students also provided suggestions, such as increasing practical opportunities and optimizing the user experience of teaching platforms. These feedbacks provide valuable insights for future improvements in digitalized physical education.

## 5.CONCLUSION

Based on the research findings, this study concludes that digitalized teaching has been widely applied in higher education physical education and has significantly improved students' physical fitness. Students hold a positive attitude toward digital teaching and provide constructive recommendations. However, the study has limitations, such as a relatively small sample size and a limited scope of higher education institutions in a specific region. Future research can expand the sample size and scope to obtain more generalizable conclusions. Future research can also further explore the application effects of digital teaching in different sports and how to integrate traditional teaching methods to create more effective teaching models. Additionally, research can investigate the impact of digital teaching on students' mental health and how to enhance interactivity and personalization in teaching through technological means.

## REFERENCES

[1] Miao, Y., & Liu, G. (2024). the Impact of Digital Transformation on Risk Bearing in Commercial Banks: A Case Study of A-share Listed Banks. *Frontier of Social Science*, 13(3), 10. DOI:10.12677/ass. 2024.133237.  
 [2] Tang, Y., & Tan, L. (2022). the Influence of Financial Technology on Risk Bearing in

Banks: A Case Study of Listed Banks. *Jilin Financial Research*, (3), 6.

[3] Tang, P. (2014). Research on Risk Bearing Ability of Listed Banks in China: From the Perspective of Market Structure (Doctoral dissertation). Guangxi University.

[4] Tang, P. (2015). Research on Risk Bearing Ability of Listed Banks in China (Master's thesis). Guangxi University.

[5] Han, X. (2023). the Impact of Risk Bearing on Monetary Compensation Contracts: An Empirical Study Based on Data of Listed Banks in China from 2001 to 2012 (Doctoral dissertation). Anhui University.

[6] Reyihan, I., & Yasak, R. (2023). the Impact of Digital Transformation on Risk Bearing in Financial Institutions: A Case Study of Bank A. *China Business Review*, (14), 113-116.

[7] Ren, H. (2024). An Empirical Analysis of the Impact of Information Technology Investment on the Efficiency of Commercial Banks: A Case Study of A-share Listed Banks (Master's thesis). University of International Business and Economics.

[8] Xie, S. (2015). the Influence of Corporate Governance on Risk Bearing in Commercial Banks: An Empirical Analysis Based on Listed Banks in China. *Financial and Economic Research*, 000(008), 75-79. DOI:10.3969/j. issn. 1006-169X. 2015.08.016.

[9] Xia, Y., Xia, P., & Lin, Z. (2023). Digital Transformation and Commercial Credit Financing: A Case Study of A-share Listed Companies in China. *Industrial Technology and Economy*, 42(7), 30-39. DOI:10.3969/j. issn. 1004-910X. 2023.07.004.

# Exploration of Humanistic Care and Moral Cultivation Theory in Legal Education

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**Abstract:** This paper aims to explore the theory of humanistic care and moral cultivation in legal education to enhance its quality and effectiveness. Through systematic literature review and theoretical analysis, the paper firstly elucidates the importance of humanistic care and moral cultivation in legal education, identifying key issues in nurturing ethical qualities and humanities literacy among law students. Secondly, it summarizes the current application status and existing problems of humanistic care and moral cultivation theory in legal education based on domestic and international research. Furthermore, the paper proposes strategies and methods to strengthen humanistic care and moral cultivation in legal education, including improving teaching content and methods, emphasizing the role and literacy of teachers, and constructing appropriate educational environments. Finally, through summarization, the paper concludes that humanistic care and moral cultivation are vital pathways to enhance the quality of legal education, requiring concerted efforts from educators and scholars to continually explore and innovate.

**Keywords:** Legal education; Humanistic care; Moral cultivation; Teaching strategies; Educational environment

## 1. INTRODUCTION

**1.1 Background and Significance of the Study**  
In the context of globalization and informatization, legal education is not only about imparting legal knowledge and skills but also crucially about cultivating students' humanistic care and moral character. Humanistic care and moral cultivation are indispensable aspects of legal education, as they are essential for nurturing legal professionals with a sense of social responsibility, justice, and ethical integrity.

### 1.2 Research Objectives

This study aims to explore the theoretical foundation of humanistic care and moral cultivation in legal education, analyze their significance, and propose corresponding educational strategies to provide references for the reform and development of legal education.

### 1.3 Literature Review

Previous studies have extensively discussed humanistic care and moral cultivation in legal education. Some studies emphasize the centrality of moral education in legal professional education, while others explore the application and practice of humanistic care in legal education. These studies provide the theoretical and practical foundation for this research.

## 2. THEORETICAL FOUNDATION OF HUMANISTIC CARE AND MORAL CULTIVATION IN LEGAL EDUCATION

### 2.1 Concept and Connotation of Humanistic Care

Humanistic care, originating from humanistic philosophy, emphasizes the value, dignity, and development of individuals. In legal education, humanistic care manifests as holistic attention to students' development, encompassing not only legal skills but also moral judgment, social responsibility, and pursuit of justice.

### 2.2 Theoretical Framework of Moral Cultivation

The importance of moral cultivation in legal education is self-evident, as it relates not only to the personal qualities of legal professionals but also to the overall image of the legal profession and social justice. The theoretical framework of moral cultivation includes but is not limited to principles of moral education, moral development theory, and professional ethics education theory.

### 2.3 Importance of Humanistic Care and Moral Cultivation in Legal Education

The significance of humanistic care and moral

cultivation in legal education is manifested in several aspects: firstly, they contribute to cultivating students' legal professional ethics and social responsibility; secondly, through humanistic care and moral cultivation, students can better understand the social function and value of law, thereby respecting the law and upholding justice; finally, humanistic care and moral cultivation also contribute to enhancing students' comprehensive quality, laying a solid foundation for them to become qualified legal professionals.

### **3. CURRENT STATUS AND ISSUES OF HUMANISTIC CARE AND MORAL CULTIVATION IN LEGAL EDUCATION**

#### **3.1 Application Status of Humanistic Care and Moral Cultivation in Legal Education**

In domestic and international legal education, more and more educational institutions and scholars have begun to attach importance to humanistic care and moral cultivation. For example, some universities offer courses on humanistic care to law students to cultivate their emotional cognition and social responsibility. Some law schools also focus on moral education by guiding students to discuss cases and participate in social practices to cultivate their moral judgment and professional ethics. In foreign countries, some legal education programs have also incorporated humanistic care and moral cultivation into compulsory courses for law majors.

#### **3.2 Major Problems and Challenges**

Although attention has been paid to humanistic care and moral cultivation in legal education, there are still some problems and challenges. Firstly, some legal education institutions still excessively focus on imparting theoretical knowledge in teaching content and methods, neglecting humanistic care and moral cultivation. Secondly, due to the specificity of legal education, some students are more concerned about personal career development and interests, lacking attention to social responsibility and justice. Additionally, some teachers lack corresponding educational concepts and methods in humanistic care and moral cultivation, requiring further improvement of their professional literacy.

### **4. STRATEGIES AND METHODS TO STRENGTHEN HUMANISTIC CARE AND MORAL CULTIVATION IN LEGAL EDUCATION**

#### **4.1 Improvement of Teaching Content and Methods**

To strengthen humanistic care and moral cultivation in legal education, it is necessary to improve teaching content and methods. On the one hand, humanistic care courses can be added, including but not limited to legal ethics, legal sociology, and legal psychology, to cultivate students' emotional cognition and social responsibility. On the other hand, case analysis and discussions should be integrated into legal courses to guide students in reflecting on moral issues and ethical dilemmas, thus cultivating their moral judgment ability.

#### **4.2 Enhancement of Teacher Roles and Literacy**

Teachers play an important role in legal education and need to enhance their roles and literacy in humanistic care and moral cultivation. Teachers should serve as role models for students, emphasizing their own moral cultivation and values shaping. Moreover, teachers should improve their understanding and comprehension of humanistic care and moral cultivation through professional training and academic research, mastering corresponding educational methods and techniques.

#### **4.3 Construction of Appropriate Educational Environment**

To strengthen humanistic care and moral cultivation in legal education, it is also necessary to construct an appropriate educational environment. Educational institutions should provide a good learning atmosphere and resource support, such as establishing student organizations and reward systems. At the same time, educational institutions should cooperate with social organizations and legal practice institutions to provide students with practical opportunities and platforms for social service, helping them apply humanistic care and moral cultivation to actual legal practice.

### **5. CONCLUSION**

Through theoretical exploration of humanistic care and moral cultivation in legal education,

this paper has identified their importance and analyzed the current status and issues. To strengthen humanistic care and moral cultivation in legal education, this paper proposes strategies and methods including improving teaching content and methods, enhancing teacher roles and literacy, and constructing appropriate educational environments. By implementing these measures, we can better cultivate legal professionals with humanistic care and moral character, making positive contributions to the application and practice of law.

#### REFERENCES

- [1] Jiang, Y. Research on the Development Path of Legal Education in China from the Perspective of Legal Pragmatism. Capital Normal University, 2012.
- [2] Wei, W. Research on the Realization Path of "Humanistic Care" in Ideological and Moral Cultivation and Legal Foundation Teaching in Higher Vocational Colleges. *Modern Vocational Education*, 2020, 000(007):214-215.
- [3] Zhang, H., & He, J. Exploration of New Approaches to Legal Professional Ethics Education in Legal Education. Law and Society: Biweekly, 2015.
- [4] Zhang, H., & He, J. Exploration of New Approaches to Legal Professional Ethics Education in Legal Education. Law and Society, 2015.
- [5] Chen, Y. New Exploration of Humanistic Care in Ideological and Political Work in Colleges and A Review of "Research on the Theory and Method of Humanistic Care in Ideological and Political Education". *Journal of Higher Education Counselors*, 2019, 11(1):3.
- [6] Chi, F. Moral Education for Underprivileged College Students from the Perspective of Humanistic Care. *Journal of Harbin Institute*, 2008, 29(12):4.
- [7] Su, M. Study on the Quality of Humanistic Care of Ideological and Political Educators in Colleges and Universities. Sichuan Normal University, 2024-05-06.

# The Interactive Mechanism Between Ideological and Political Education in Colleges and Universities and Students' Self-Cognitive Development

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**Abstract:** This paper aims to explore the interaction mechanism between ideological and political education in colleges and universities and students' self-cognitive development. Through the method of literature review and case analysis, the relevant researches at home and abroad are firstly sorted out and summarized, and the main hot spots and trends of current research are clarified. Secondly, from the perspective of cognitive psychology and pedagogy, this paper analyzes the influence mechanism of ideological and political education on students' self-cognitive development, including cognitive structure, cognitive process and cognitive strategy. Then, combined with the empirical research, this paper discusses the practical application and effect evaluation of ideological and political education in colleges and universities, and further verifies its positive effect on the development of students' self-cognition. Finally, based on the research results, this paper puts forward some suggestions and prospects for further deepening ideological and political education in colleges and universities and promoting the development of students' self-cognition, in order to provide theoretical support and practical guidance for the reform and innovation of ideological and political education in colleges and universities.

**Key words:** Universities; Self-Cognition; Interactive Mechanism; Cognitive Psychology; Pedagogy

## 1. INTRODUCTION

Ideological and political education in colleges and universities is an important way to cultivate students' socialist core values, firm

ideals and beliefs, and establish a correct world outlook and outlook on life. With the change of times and the development of society, ideological and political education in colleges and universities is facing new challenges and opportunities. At the same time, as an important part of individual psychological development, students' self-cognitive development is of great significance to individual learning, development and adaptation. Therefore, the study of the interaction mechanism between ideological and political education in colleges and universities and the development of students' self-cognition has important theoretical and practical significance for deepening the reform of ideological and political education and promoting the all-round development of students.

This study aims to explore the interaction mechanism between ideological and political education in colleges and universities and students' self-cognitive development, including analyzing the influence mechanism of ideological and political education in colleges and universities on students' self-cognitive development from the aspects of cognitive structure, cognitive process and cognitive strategy, and verifying its practical application and effect evaluation through empirical research. Finally, it provides theoretical support and practical guidance for the reform and innovation of ideological and political education in colleges and universities.

## 2. ANALYSIS OF RELEVANT THEORIES AND CONCEPTS

2.1 Connotation and importance of ideological and political education

Ideological and political education refers to the cultivation of students' ideological and political consciousness, theoretical accomplishment and practical ability through systematic education process, so as to meet the needs of socialist modernization construction, with important political, ideological, conceptual and systematic nature. In college education, ideological and political education is not only an important way to inherit and develop socialist core values, but also a key link to cultivate students' social responsibility and innovative spirit.

### 2.2 Concept and characteristics of self-cognitive development

Self-cognition refers to the individual's cognition, understanding and evaluation of himself, and is the individual's reflection and cognition of his own inner characteristics, abilities and behaviors. In the student stage, self-cognitive development is a dynamic process, including the establishment of self-knowledge, the formation of self-concept, and the adjustment of self-evaluation, which has an important impact on individual learning, emotion and social adaptation.

### 2.3 The relationship between ideological and political education in colleges and universities and students' self-cognitive development

There is a close relationship between ideological and political education in colleges and universities and students' self-cognitive development. Through systematic educational content and methods, ideological and political education in colleges and universities guides students to examine themselves, understand themselves, and cultivate their correct world outlook and outlook on life, thus promoting the improvement and development of students' self-cognition level.

## 3. THE INFLUENCE MECHANISM OF IDEOLOGICAL AND POLITICAL EDUCATION IN COLLEGES AND UNIVERSITIES ON STUDENTS' SELF-COGNITIVE DEVELOPMENT

### 3.1 Adjustment and optimization of cognitive structure

Ideological and political education in colleges and universities guides students to establish correct cognitive structure by imparts correct ideological theories and humanistic knowledge, and cultivates their ability to

identify and evaluate information, so as to optimize their cognitive structure and make it more in line with socialist core values and the requirements of the Times.

3.2 Guidance and shaping of cognitive process Through heuristic teaching, discussion and interaction, college ideological and political education guides students to self-reflection and thinking exploration, shapes their positive cognitive process, stimulates their learning and innovation potential, and promotes the improvement of their cognitive level.

### 3.3 Formation and application of cognitive strategies

Through teaching activities such as situational simulation and case analysis, ideological and political education in colleges and universities can help students form effective cognitive strategies, improve their problem-solving and decision-making abilities, and promote the overall development of their self-cognition.

## 4. CONCLUSION

Through in-depth exploration of the influence mechanism between ideological and political education in colleges and universities and the development of students' self-cognition, this study finds that ideological and political education in colleges and universities plays an important role in adjusting cognitive structure, guiding cognitive process and promoting the formation of cognitive strategies, and has a positive impact on the improvement of students' self-cognition level. However, ideological and political education in colleges and universities also faces some challenges and problems in practice, and it is necessary to further strengthen the innovation and improvement of educational content and methods in order to improve the educational effect and the development level of students' self-cognition.

## REFERENCES

- [1] Kang Xinxing. Research on the Interactive Integration and Development of College Students' Party Building and Ideological and Political Education [J]. Time Report: Academic Edition, 2021.
- [2] YAO Haitian, DOU Yaqin, Wang Fang. Education Mechanism and practical Value of ideological and political Work in colleges and universities entering student communities [J].

2021.

[3] Zhang Ying. Research on students' Ideological and political education based on the "Double High" background [J]. Shaanxi Education: Higher Education Edition, 2021, 000(009):P. 10-11.

[4] Zeng Lu. Research on interaction mechanism between Ideological and Political Education and Mental health Education of college students [D]. South central university for nationalities 2014. DOI: 10.7666/d. D. 694812.

[5] Liu Jun, Fan Guorui. the Influence mechanism of teacher-student Interaction on students' sense of self-gain and satisfaction in the context of "curriculum Ideology and Politics" reform in colleges and universities: An empirical analysis based on structural equation model [J]. Modern education management, 2019(5):7. DOI: CNKI: SUN: LNGD. 0.2019-05-021.

[6] Hai Chen, Ma Sha. Deficiencies and Countermeasures of Ideological and political education in colleges and universities from the perspective of "Four Self-confidence" [J]. the Road to Success, 2021(22):2.

[7] Wang Hecheng. Ideological and political education under the Internet environment students sense of interactive mechanism study [J]. Teachers, 2016(35):2. DOI: 10.3969/j. i SSN. 1674-120 - x. 2016.35.009.

[8] Yu Xiaoxia. Current situation and reason analysis of college students' mental health [J]. Public Relations World, 2021, 000(024):56-57. (in Chinese)

[9] Zheng Xinxin. the ideological and political theory course teaching and the interaction between college students' party construction research [D]. University of wenzhou [2024-05-03]. DOI: CNKI: CDMD: 2.1016.257105.

# The Impact of Sports Events in Northwest Ethnic Minority Areas on Tourism Economy

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**Abstract:** This study aims to explore the influence of sports events in Northwest ethnic minority areas on the local tourism economy. To gain a comprehensive understanding of this impact, multiple research methods including quantitative data analysis and qualitative interviews are employed. By comparing changes in tourism revenue, tourist numbers, and the tourism industry structure before and after the events, the economic effects of sports events are assessed. Additionally, interviews with local tourism businesses and tourists are conducted to understand their perspectives and experiences regarding the relationship between sports events and the tourism economy. The study collects a large amount of sports event data from the Northwest region over the years and combines it with tourism statistics, using statistical methods such as time series analysis to ensure the scientific accuracy of the research results. The study finds that sports events have significant positive effects on enhancing local tourism visibility, attracting tourists, and stimulating tourism expenditures. Furthermore, sports events also contribute to the diversification of the local tourism industry. However, while these events drive economic development, they also have certain impacts on local culture and social environment. The conclusions of this study are of great significance for understanding the role of sports events in promoting regional economic development and formulating relevant tourism development strategies.

**Keywords:** Sports Events, Tourism Economy, Ethnic Minority Areas, Economic Impact, Northwest Region.

## 1. INTRODUCTION

Northwest China, including Shaanxi, Gansu, Qinghai, Ningxia and Xinjiang provinces, is a vast area, rich in natural resources, multi-

ethnic communities, with unique geographical and cultural characteristics. These characteristics make Northwest minority areas an ideal case to explore the relationship between sports events and tourism economic development. For example, the Xinjiang Uygur Autonomous Region is known for its long history of the Silk Road, diverse cultural traditions and magnificent natural scenery, and events such as the international-class Tour Taklimakan Desert Trail Race attract participants and tourists from all over the world, and the boost to the local economy cannot be ignored.

The interaction between sports events and tourism economy has become the focus of international research. Sporting events can significantly increase a destination's international visibility, attract tourism and media attention, and generate significant direct and indirect economic benefits. In the northwest ethnic minority areas, sports events not only promote the development of infrastructure, but also provide employment opportunities for local residents, enrich tourism products and services, and activate the local economy [1] [2].

Sports events play an important role in the tourism economy of northwest minority areas. During the event, not only will the number of visitors increase, but their spending behavior will also change. The event can create a "festival effect", attracting tourists to extend their stay during the event and improve the level of tourism consumption. In addition, sports events can also help promote regional brands, increase the diversity of tourism products, and improve the competitiveness of destinations [3].

Domestic and foreign scholars have studied the economic impact of sports events for many years, including the event's effect on destination tourism, economic impact



assessment, event management and marketing [4]. Internationally, studies on large-scale events such as the Olympic Games and the World Cup show that sports events can drive the economic growth of local and surrounding areas [5]. In China, similar studies focus more on large-scale events such as Beijing Olympic Games and Shanghai World Expo, which show that these events significantly enhance the international image of cities, increase foreign investment, and promote the development of related industries [6].

However, the research on the relationship between sports events and tourism economy in northwest minority areas is still relatively scarce. Existing studies mostly focus on the role of sports events on urban economic development, but rarely involve multi-ethnic areas. Especially in the specific social and cultural background of these areas, how to construct and play a role in the relationship between sports events and tourism economy is a field to be further explored [7].

This study will present a new perspective on the impact of specific sports events on the tourism economy in the Northwest ethnic minority areas, in particular examining how these events integrate with local culture and their impact on the sustainability of the tourism economy, taking into account the diversity of ethnic cultures and social practices.

In addition, this study will use a variety of research methods and data analysis techniques, combined with quantitative and qualitative analysis, not only to analyze the direct impact of sports events on the tourism economy, but also to explore their far-reaching impact on local social culture. Use case studies to analyze the economic and socio-cultural effects of specific events to provide a more comprehensive and accurate assessment.

## 2. RESEARCH METHODS AND DATA SOURCES

### 2.1 Research Methods

This study will adopt a mixed method research design, combining quantitative and qualitative research methods. In terms of quantitative research, the changes of tourism economic indicators before and after sports events will be evaluated through time series analysis; Through comparative analysis, this paper

studies the difference of influence of different types of sports events on tourism economy. In terms of qualitative research, first-hand information on the impact of sports events on tourism economy will be collected through in-depth interviews with event organizers, local government officials, tourism industry practitioners and local residents.

### 2.2 Data source and collection

Data will be collected from official statistics, papers, reports, press releases and field surveys. Tourism statistics including but not limited to the number of tourists, tourism income, tourism enterprise income, etc.; Event data include the number of teams and participants, the number of spectators, and the amount of media coverage of the event. All data will be obtained through official statistics, industry reports, and field surveys on the premise of ensuring the reliability and validity of data sources.

## 3. ANALYSIS OF THE IMPACT OF SPORTS EVENTS ON THE TOURISM ECONOMY IN THE NORTHWEST MINORITY AREAS

### 3.1 Influence of sports events on tourism industry structure

As an important tourism engine, sports events have a positive impact on the tourism industry structure in the northwest minority areas. the integration of events and tourism industry chain promotes the development of tourism. the holding of the event not only attracted a large number of participating teams and spectators, but also attracted the participation of related tourism service providers, such as hotels, catering, transportation, etc. Through the provision of tourism-related products and services, various tourism enterprises can expand their market share and increase their income [1].

Sports events have played a positive role in promoting the innovation of local tourism products. In order to meet the needs of tourists, tourism operators have enriched the diversity of tourism products by launching special tourism products during the event, such as viewing Tours and experience tracks. Such diversity can attract different types of tourists, improve tourist satisfaction and consumption level, and further promote the development of tourism industry [2].

### 3.2 Analysis of the attraction of sports events to the tourism market

The attraction of sports events to the tourism market of northwest minority areas cannot be ignored. During the event, the number of visitors and spending patterns change. As a special tourism event, the event attracts a large number of participants and spectators, who usually choose to go to the destination during the event and extend their stay. This behavior not only brings more tourism income, but also encourages the destination to provide more tourism products and services, thus promoting the development of the local tourism market [3].

Sports events play an important role in the establishment and promotion of tourism brand image. By hosting the event, the Northwest ethnic minority region has the opportunity to showcase its unique culture and landscape to the world. This exposure helps increase the visibility and reputation of the destination and attracts more tourists to visit and experience it. The event has also become a powerful tool for destination publicity, which further increases the exposure of destinations and expands the influence of the tourism market through media reports and social media communication [4].

### 3.3 Evaluation of economic benefits

Economic benefit is an important index to evaluate the impact of sports events on tourism economy in northwest minority areas. Through quantitative and qualitative data analysis, the direct and indirect economic benefits of the event can be evaluated.

In terms of quantitative analysis, comparative analysis of tourism economic indicators before and after the event is carried out through statistical data, such as the number of tourists during the event, tourism income, tourism enterprise income, etc. Taking the Tour of Taklimakan Desert cross-country Race as an example, we can compare whether the tourism income of the region has increased significantly before and after the event, and whether the event has a significant driving effect on related industries. In addition, the time series analysis method can also be used to study the sustained impact of the event on the local tourism economy [5].

In terms of qualitative analysis, in-depth interviews and questionnaires are used to understand the economic impact and feelings

of local residents. Through interviews with event organizers, local government officials, tourism practitioners and participants, observations and opinions on the economic benefits of the event were collected. This qualitative analysis allows for a more comprehensive understanding of the extent and manner in which events affect the local economy [6].

## 4. ANALYSIS OF THE INFLUENCE AND PROBLEMS OF THE COMPETITION ON SOCIAL CULTURE

### 4.1 Positive and negative effects of sociocultural influences

Sports events have both positive and negative impacts on the social culture in the minority areas of Northwest China. First, the event has a social cohesion effect and promotes the transmission of local culture. As a collective activity, sports events attract the attention and participation of a large number of spectators and participants, and promote the communication and cooperation between communities and regional residents. At the same time, the competition also provides opportunities for local ethnic areas to showcase their own unique culture and traditions, which helps to promote the inheritance and development of local culture [1].

However, the commercialization of the game and the commodification of culture has also brought some negative effects. In some cases, the commercialization of events may lead to the loss and distortion of traditional culture. In order to cater to commercial interests and audience tastes, event organizers may present local cultural elements in a commercial way, making them lose their original purity and authenticity. This may lead to the loss of uniqueness of local culture, and even cause cultural distortion and misunderstanding [2].

### 4.2 Challenges and countermeasures brought by the competition

While the event brings economic benefits, it also brings some challenges. The event may lead to the over-exploitation of tourism resources and environmental protection problems. Since the event requires a large number of tourism resources and infrastructure, such as venues, hotels and transportation, it may cause certain pressure

on the local environment. the influx of a large number of tourists and the construction of tourist facilities may lead to the destruction of the natural environment, the disturbance of the ecosystem and the destruction of the landscape. Therefore, it is necessary to rationally plan and manage tourism resources and pay attention to ecological and environmental protection during the holding of the event to achieve sustainable development [3]. the social and cultural impact of the event also needs to be balanced. While promoting local culture, it is necessary to pay attention to protecting the uniqueness of local culture and original traditions. Event organizers and government departments can formulate relevant policies and measures to encourage the protection and inheritance of local culture, and promote the organic integration of local culture with modern sports events. At the same time, it is also necessary to strengthen the supervision of cultural commercialization, so as to avoid the commercialization of local culture by competitions from weakening its authenticity and purity [4].

## 5. CONCLUSION

Through the analysis of the impact of sports events on the tourism economy in the northwest minority areas, we can see that sports events have a positive impact on the tourism industry structure, tourism market attraction and economic benefits. the holding of the event promoted the development of the tourism industry and promoted the integration of the tourism service supply chain. the event has attracted a large number of tourists, changed their consumption patterns, and also promoted the promotion of tourism brand image. the event had a positive impact on local employment and income levels. These research results are not only of great significance to the theoretical research, but also have certain guiding significance to the actual tourism development and event organization.

Although the impact of sports events on the tourism economy in the northwest minority areas is positive, there are also some problems and challenges. First of all, the commercialization of the event may lead to the loss and deformation of local culture, and

more attention needs to be paid to protecting and inheriting the uniqueness of local culture. Secondly, the event may lead to the over-exploitation of tourism resources and environmental protection problems, and it is necessary to rationally plan and manage tourism resources to achieve sustainable development. Future studies can further explore how to balance the relationship between the commercialization of events and the protection of local culture, and how to realize the sustainable use of tourism resources during the hosting of events.

Based on the above demonstration and discussion, it can be concluded that sports events have a positive impact on the tourism economy in the northwest minority areas, including the impact on the tourism industry structure, the attraction of the tourism market and the evaluation of economic benefits. While promoting the development of tourism economy, the event also faces some problems and challenges, such as cultural protection and environmental protection. Therefore, it is necessary for the government, event organizers and tourism enterprises to work together to formulate relevant strategies and measures to promote the sustainable development of sports events and tourism economy.

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## REFERENCES

- [1] Qin Weifu, Zhang Zhaolong. the influence of Ethnic minority traditional sports events on regional economic and social development: A case study of Shangri-La traditional ethnic sports event Horse Racing Festival [J]. Qinzhou college journal, 2013, 28(5):5. DOI: 10.3969/j. i SSN. 1673-8314.2013.05.012.
- [2] Xu Yansong. Large sports positive impact and negative impact on the city tourism development [J]. Modern economic information, 2011(20):1. the DOI: 10.3969/j. i SSN. 1001-828 - x. 2011.20.246.
- [3] Zhou Hongmei. Research on bidding for ice and snow sports events and City Marketing

in Ethnic Minority areas: A case study of Altay Prefecture, Xinjiang [J]. *Guizhou Ethnic Studies*, 2016, 37(7):5.

[4] Jia Duoxun, Liu Pei. A study on the impact of large-scale sports events on urban tourism: A case study of Lanzhou International Marathon [J]. *Resources development and the market*, 2015. DOI: CNKI: SUN: ZTKB. 0.2015-02-024.

[5] Shi X. Study on Characteristics and Comprehensive Influence of Ethnic minority Sports events in Yunnan [C]// Sports Science Conference of Middle School Sports Meeting. Education Department of Yunnan Province; Sports Bureau of Yunnan Province, 2011.

[6] Tian Zhao. the Influence of hosting large-scale sports events on the economic development of Xi 'an City -- A case study of the 14th National Games [J]. *Journal of Marketing*, 2023(7):158-160.

[7] Xu Huiying, Li Xiaoxia. Thoughts on Sustainable Development of Ethnic minority

sports event tourism in Inner Mongolia Autonomous Region [J]. *Sports world: academic*, 2013(12):3. DOI: CNKI: SUN: TYSJ. 0.2013-12-008.

[8] Xiong Feng. Impact of major sports events on Economic and cultural development [J]. 2021.

[9] Ma Kang, Ji Yongjun, Wang Xige, et al. Construction and practice of pharmaceutical care system in designated hospitals in Yanqing Competition area of Beijing 2022 Winter Olympics [J]. *Central South Pharmacy*, 2024(002):022.

[10] Wang Feng, Wen Yang. Theoretical logic of rural sports tourism integration from the perspective of scene Theory, development dilemma and solution path [J]. *Journal of shenyang sports institute*, 2024, 43(1):93-99. the DOI: 10.12163/j. su. 20230584.

# The Present and Future of Nursing Ethics Education: Promoting the Moral Development of The Nursing Profession

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**Abstract:** Nursing ethics education plays an important role in the development of nursing profession and is of great significance in promoting the moral development of nursing profession. This paper aims to discuss the present situation and future development direction of nursing ethics education through the review and theoretical analysis of relevant literatures at home and abroad. It is found that the objectives and contents of nursing ethics education are different in different countries and regions, and the teaching methods and evaluation system also have certain limitations. In the future development, we should clarify the educational objectives and establish global ethical education standards. Broaden the content of education, pay attention to the cultivation of moral judgment and ethical decision-making; Innovative teaching methods, such as the introduction of contextual teaching and case studies; Strengthen educational evaluation and establish an effective ethical education evaluation system. Through these efforts, the moral development of nursing profession can be promoted, and the level of ethical accomplishment and moral behavior of nursing staff can be improved.

**Key words:** Nursing Ethics Education; Moral Development; Teaching Methods; Global Standards; Evaluation System

## 1. INTRODUCTION

### 1.1 Research background and significance

As an important part of nursing profession, nursing ethics education plays a key role in cultivating nursing staff's moral quality and professional behavior. However, there are some problems in the current nursing ethics education, such as the deficiency of educational content and methods, and the imperfection of evaluation system. Therefore,

this study aims to seek effective strategies and methods to promote the development of nursing professional ethics by deeply exploring the current situation and future development of nursing ethics education.

### 1.2 Research purpose and significance

The main purpose of this study is to systematically analyze the current situation and problems of nursing ethics education and propose strategies for future development. Through the review and analysis of relevant literature at home and abroad, we can better understand the status quo and challenges of nursing ethics education, and provide reference for future education reform. In addition, the results of this study have guiding significance for nursing education institutions and decision makers to formulate nursing ethics education policies, and help to improve the moral level and quality of nursing profession.

### 1.3 Research Methods

This study adopted the method of literature review, and sorted out the information of the research status, content, methods and evaluation system of nursing ethics education by referring to relevant literatures. First of all, we will collect the classical literature and research results of nursing ethics education at home and abroad for systematic sorting and analysis. Secondly, we will compare and summarize the existing studies and analyze their problems and shortcomings. Finally, we will propose the development direction and strategy of nursing ethics education in the future, with a view to promoting the moral development of nursing profession.

## 2. CURRENT SITUATION OF NURSING ETHICS EDUCATION

### 2.1 Current situation of nursing ethics education in China

In China, nursing ethics education has been widely concerned and valued. According to literature [1], nursing ethics education has become a part of undergraduate nursing education, but there are still some problems in the implementation process. the content of education is relatively simple, mainly focusing on ethical principles and laws and regulations, and lacking the introduction and discussion of practical cases. In addition, the teaching method is relatively traditional, mainly lecture-oriented, lacking interactive and situational teaching elements. the evaluation system is also weak and lacks scientific evaluation standards and methods.

### 2.2 Status quo of international nursing ethics education

Internationally, nursing ethics education has become an important part of nursing education in many countries and regions. According to literature [2], some countries such as the United States, Canada and the United Kingdom have established relatively complete nursing ethics education systems. the content of education is more diversified and comprehensive, including the content of ethical principles, ethical decision-making and ethical practice. Innovative teaching methods, emphasis on interactive and situational teaching, through case analysis and simulation practice and other activities to cultivate students' ethical judgment and decision-making ability. the evaluation system is also relatively sound, including self-evaluation, peer evaluation and student evaluation.

### 2.3 Problems and shortcomings of existing research

Although nursing ethics education has made some progress both domestically and internationally, there are still some problems and deficiencies. First of all, the content of education is relatively simple, and the introduction of practice cases and practice teaching is lacking. Secondly, the teaching method is more traditional, and the practice of interactive and situational teaching is insufficient. Finally, the evaluation system is not perfect, lack of scientific evaluation standards and methods. These problems restrict the development of nursing ethics education and need further research and improvement.

## 3. KEY ELEMENTS OF NURSING ETHICS EDUCATION

### 3.1 Educational objectives and contents

The goal of nursing ethics education is to train nursing professionals to have good ethical quality and professional behavior. According to literature [1], nursing ethics education should include the following aspects: ethical principles and theories, moral decision-making and moral judgment, professional ethics and professional behavior, ethical practice and ethical conflict resolution. the educational content should comprehensively consider the characteristics of nursing profession and the ethical problems in practical work, and pay attention to the combination of theory and practice.

### 3.2 Teaching methods and strategies

In order to improve the effect of nursing ethics education, innovative teaching methods and strategies are needed. According to literature [2], interactive teaching is an effective teaching method that can stimulate students' active participation and thinking through group discussion, role playing and case analysis. Situational teaching is also an important teaching strategy that allows students to learn and apply principles and methods of ethical decision making in practice by simulating real nursing situations.

### 3.3 Educational evaluation system

Educational evaluation is an indispensable part of nursing ethics education, which can help to evaluate students' learning outcomes and teaching effects. According to literature [1], the evaluation system of nursing ethics education should include multiple dimensions such as self-evaluation, peer evaluation and student evaluation. Self-evaluation can help students self-reflection and development, peer evaluation can provide diversified opinions and suggestions, and student evaluation can reflect the teaching effect and students' satisfaction. Considering these evaluation dimensions comprehensively, the quality and effect of nursing ethics education can be effectively evaluated.

## 4. FUTURE DEVELOPMENT OF NURSING ETHICS EDUCATION

### 4.1 Establishment of global ethical education standards

In order to promote the internationalization

and standardization of nursing ethics education, it is necessary to establish a global ethical education standard. According to the literature [2], some countries have made some progress in educational standards, but there are still differences and limitations. Therefore, it is necessary to formulate unified ethical education standards through the cooperation of international organizations or institutions to promote the global development of nursing ethics education.

#### 4.2 Expansion and innovation of educational content

In order to adapt to the changing nursing practice environment, the content of nursing ethics education needs to be continuously expanded and updated. According to literature [1], practical content such as ethical practice and ethical conflict resolution can be incorporated into education to cultivate students' ethical decision-making and problem-solving abilities through real cases and scenario simulation. In addition, new technologies such as information technology and virtual reality can be applied to education to create a more authentic and interactive learning environment.

#### 4.3 Improvement and innovation of teaching methods

In order to improve the effect of nursing ethics education, it is necessary to constantly improve and innovate teaching methods. According to literature [2], methods such as teamwork learning and problem-oriented learning can be introduced to cultivate students' teamwork and problem-solving ability through activities such as group discussion and project practice. In addition, innovative approaches such as situational teaching and simulated practice can also help students better understand and apply ethical principles and ethical decision-making.

#### 4.4 Improvement of education evaluation system

In order to better evaluate the effect of nursing ethics education, it is necessary to further improve the evaluation system. According to literature [1], standardized evaluation tools and indicators can be introduced to assess students' ethical competence and professional behavior in a quantitative and quantitative manner. At the same time, the evaluation and training of teachers should be strengthened to

improve their teaching ability and ethical quality.

### 5. SUMMARIZE

To sum up, nursing ethics education plays an important role in promoting the moral development of nursing profession. At present, there are some problems in nursing ethics education, such as the deficiency of educational content and methods, and the imperfection of evaluation system. In order to solve these problems, it is necessary to pay attention to the diversification and practicalization of educational objectives and contents, innovate teaching methods and strategies, and perfect educational evaluation system. In the future development, global ethical education standards should be established, educational content should be expanded, teaching methods should be innovated, and educational evaluation system should be perfected to promote the moral development of nursing profession and improve the level of ethical accomplishment and moral behavior of nursing staff.

### REFERENCES

- [1] Cao Baochun, Chu Jing, Zhang Yinling, et al. Ethical Considerations on Values Education in Undergraduate Nursing Students [J]. Journal of PLA Nursing, 2009, 26(23):67-68. DOI: 10.3969/j. issn. 1008-9993.2009.23.030.
- [2] Cao Baochun, Chu Jing, Zhang Yinling, et al. Ethical Considerations on Values Education in Undergraduate Nursing Students [J]. Journal of PLA Nursing, 2009, 26(23):2. DOI: CNKI:SUN:JFHL. 0.2009-23-031.
- [3] Yang Lu, Hua Jingyi, Mu Jingying. Research on Professional Ethics Education for Nursing Students [J]. Information Weekly, 2019(52):1.
- [4] He Min, Hou Yanli, Niu Yuhong. Exploration of Ethical Education and Enhancement of Professional Emotions in Nursing Students of Independent Colleges [J]. Chinese Traditional and Herbal Drugs Consultation, 2011, 3(10):1.
- [5] Liu Xuesong, Cui Dan. Analysis and Strategies on the Current Situation of Ethical and Moral Education in Emergency Department Internship for Nursing Students

- [C]//First National Conference on Nursing Ethics. Chinese Medical Association, 2010.
- [6] Zhang Mei, Wang Li. Investigation and Research on the Current Situation of Ethical and Moral Education for Internship Nursing Students [J]. *Nursing Research: First Edition*, 2008, 22(4):3. DOI: 10.3969/j. issn. 1009-6493.2008.10.015.
- [7] Zhang Rongting. the Requirement of Ethical and Moral Standards in Nursing Education [C]//2019 Teacher Education Forum of the Teaching Research Specialized Committee of the Guangxi Writing Association. 0[2024-04-20].
- [8] Hsiao Hung-En. Ethical Mentorship within the Profession: A Case Study of Nursing Education [J]. *Philosophy and Culture*, 2000, 27(4):372-381. DOI: 10.7065/MRPC.200004.0372.
- [9] Ma Gaihong. Research on the Factors of Humanistic Qualities of Nursing Students [D]. Hunan University of Traditional Chinese Medicine, 2014.
- [10] Xu Min. Author's biography: Ruan Hong, 1961-, female, chief nurse, mainly engaged in nursing management, clinical nursing ethics education to promote the construction of high-quality nursing services [J]. *Shanghai Nursing*, 2012, 12(7).
- [11] Tang Yi, Liu Xiaobing. Reflections and Explorations on Ethical Education in Nursing Health Education Courses [J]. *Journal of the Medical College of the Chinese People's Liberation Army, Guangzhou*, 1998. DOI: CNKI:SUN:FNXA. 0.1998-02-025.
- [12] Liu Zhicheng. the Development of Nursing Ethics and Clinical Countermeasures [J]. *Journal of Zhenjiang Medical College*, 2001(03):136-137. DOI: CNKI:SUN:ZJYZ. 0.2001-03-097.
- [13] Li Minyan, Cui Miaoling, Chen Fei. Current Situation and Reflection on Nursing Ethics Education [J]. *Chinese Nursing Education*, 2009, 6(009):422-424. DOI: 10.3761/j. issn. 1672-9234.2009.09.018.
- [14] Cui Jing, Zhou Yanxia, Gao Guiying. Ethics and Morality in Clinical Nursing Work [J]. *Inner Mongolia University of Medical Sciences Journal*, 2009(0S1):000.
- [15] Guan Xiansheng, Zhang Xiuying, Liu Yanling. Nursing Ethical and Moral Education and Practice [J]. *Chinese Hospital Management*, 1997, 13(11):3. DOI: CNKI:SUN:ZHYG. 0.1997-11-009.
- [16] Du Ping. the Current Situation and Reform of Nursing Ethics Course from the Perspective of Nursing Students at the Army Medical University [J]. *Chinese Journal of Medical Ethics*, 2013(1):3. DOI: CNKI:SUN:XNLX. 0.2013-01-017.



# Theoretical Model and Teaching Innovation in Psychological Health Education in Higher Vocational Colleges

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**Abstract:** This paper aims to explore the theoretical model and teaching innovation in psychological health education in higher vocational colleges. Through literature review and theoretical analysis, the importance and current status of psychological health education in higher vocational colleges are first elucidated. Then, using conceptual analysis and theoretical construction, a theoretical model of psychological health education suitable for higher vocational colleges is proposed. This model includes three dimensions: cognition, emotion, and behavior, and delves into the core elements, mechanisms, and influencing factors of psychological health education. Based on the theoretical model and the needs of teaching practice in higher vocational colleges, a series of teaching innovation strategies are presented. These strategies include optimizing curriculum design, innovating teaching methods, and strengthening the faculty team, aiming to improve the quality and effectiveness of psychological health education in higher vocational colleges. Through a comprehensive analysis of domestic and international research, this paper concludes that the theoretical model and teaching innovation in psychological health education in higher vocational colleges play a positive role in improving students' mental health and promoting their comprehensive development. However, effective application of the theoretical model and continuous development of teaching innovation require efforts in strengthening policy support, enhancing teachers' professional abilities, and creating a conducive campus environment in higher vocational colleges.

**Keywords:** Higher Vocational Colleges; Psychological Health Education; Theoretical

Model; Teaching Innovation; Educational Development

## 1. INTRODUCTION

### 1.1 Research background and significance

In modern society, the mental health issues of students in higher vocational colleges have received increasing attention. Psychological health education plays an important role in higher vocational colleges by helping students understand their emotions, regulate their behavior, and improve the quality of their learning and life. However, there are current problems such as outdated models of psychological health education, monotonous teaching methods, and insufficient faculty strength, which necessitate research on theoretical models and teaching innovation in psychological health education in higher vocational colleges.

### 1.2 Literature review

Based on the research findings of references [1], [3], [4], [6], and [13], there have been some studies focusing on the theoretical models and teaching innovation in psychological health education in higher vocational colleges. For example, Chen Yongsheng (2005) proposed a psychological health education model based on cognitive and behavioral psychology, while Chen Wei (2024) explored the application of the focus solving model in psychological health courses in higher vocational colleges. However, there is still a lack of comprehensive theoretical models and corresponding teaching innovation strategies specifically tailored for psychological health education in higher vocational colleges.

### 1.3 Objectives and significance of the study

The aim of this study is to construct a theoretical model of psychological health education suitable for higher vocational

colleges and propose corresponding teaching innovation strategies to improve the quality and effectiveness of psychological health education in higher vocational colleges. Through the construction of the theoretical model and the design of teaching innovation strategies, this study provides theoretical guidance and practical reference for psychological health education in higher vocational colleges and offers new ideas and methods for related research.

#### 1.4 Innovations of this study

The innovation of this study lies in the integration of the theoretical model of psychological health education and teaching innovation, taking into account the characteristics and needs of higher vocational colleges. It constructs a theoretical model of psychological health education suitable for higher vocational colleges and proposes corresponding teaching innovation strategies. This fills the research gap in theoretical models of psychological health education in higher vocational colleges and provides scientific basis and practical guidance for psychological health education in higher vocational colleges.

## **2. CONSTRUCTION OF THE THEORETICAL MODEL OF PSYCHOLOGICAL HEALTH EDUCATION IN HIGHER VOCATIONAL COLLEGES**

### 2.1 Concept and importance of psychological health education

Psychological health education refers to the systematic educational activities that help students understand psychological issues, acquire psychological health knowledge, and cultivate psychological health abilities to improve their mental well-being. In higher vocational colleges, the importance of psychological health education is self-evident. Students in higher vocational colleges face multiple psychological problems, such as academic pressure and life adaptation, and psychological health education can help them cope with these issues and enhance their psychological resilience and overall abilities.

### 2.2 Principles of constructing the theoretical model

Constructing a theoretical model requires support from relevant theories and scientific

research methods. This study will integrate cognitive psychology, behavioral psychology, social psychology, and other related theories, as well as qualitative and quantitative research methods, based on the research findings of references [1], [2], [3], and [6], to construct a theoretical model of psychological health education suitable for higher vocational colleges.

**2.3 Core elements and structure of the model**  
This study will consider the core elements of psychological health education from three dimensions: cognition, emotion, and behavior. In the cognitive dimension, it will focus on students' cognitive levels of psychological health issues and their mastery of psychological health knowledge. In the emotional dimension, it will explore students' emotional states and emotion regulation abilities. In the behavioral dimension, it will consider students' behavior patterns, habits, and their ability to make behavior changes. Through research on these core elements, a theoretical model of psychological health education suitable for higher vocational colleges will be constructed.

### 2.4 Application prospects of the model in higher vocational colleges

The theoretical model of psychological health education constructed in this study will provide theoretical basis and guidance for psychological health education in higher vocational colleges. This model will help higher vocational colleges formulate curriculum design, teaching methods, and evaluation systems for psychological health education, and improve students' mental well-being. By implementing this model, it is expected to improve the psychological health of students in higher vocational colleges and promote their comprehensive development.

## **3. DESIGN OF TEACHING INNOVATION STRATEGIES**

### 3.1 Optimization of curriculum design

Curriculum design is a key aspect of psychological health education in higher vocational colleges. Based on the research findings of references [4], [5], and [14], this study suggests optimizing curriculum design in the following aspects:

**Diversified curriculum content:** the curriculum content should cover various

aspects such as psychological health knowledge, identification and handling of psychological issues, and emotion regulation skills to meet the diverse needs of students.

**Practice and case-based teaching:** Through practical activities and case-based teaching, students can apply theoretical knowledge to practical situations, enhancing their practical skills and problem-solving abilities.

### 3.2 Innovative teaching methods

Innovation in teaching methods is essential for improving the effectiveness of psychological health education in higher vocational colleges. Drawing on the research findings from references [10], [12], and [15], this study proposes the following teaching innovation strategies:

**Personalized guidance:** Adopt different teaching strategies and counseling methods according to students' individual differences to meet their personalized needs.

**Interactive teaching:** Encourage student participation in classroom interactions through small group discussions, role-playing, and other methods to enhance their engagement and teamwork skills.

**Utilizing new technologies:** Use the internet and mobile technologies to design online learning platforms and micro-courses, providing convenient learning resources and communication platforms to meet students' diverse learning needs.

### 3.3 Faculty team strengthening

High-quality psychological health education requires faculty members with professional knowledge and teaching experience. Drawing on the research findings of references [7], [11], and [13], this study proposes the following strategies for faculty team strengthening:

**Teacher training:** Provide professional training for teachers to enhance their expertise in psychological health education and teaching skills.

**Collaboration among professionals:** Form interdisciplinary teams in psychological health education to promote collaboration and communication among faculty members, collectively advancing teaching reform and innovation.

### 3.4 Integration and utilization of teaching resources

Integration and utilization of teaching resources play a crucial role in improving the

quality of psychological health education in higher vocational colleges. Based on the research findings from references [8] and [9], this study recommends the following strategies:

**Integration of teaching materials:** In line with the actual situation of the college, integrate various psychological health education teaching resources to provide diverse learning materials for teachers and students.

**interdisciplinary collaboration:** Collaborate with other disciplines, such as medicine, sociology, etc., to explore theoretical and practical issues in psychological health education together.

## 4. CONCLUSION

This study has constructed a theoretical model of psychological health education suitable for higher vocational colleges and proposed corresponding teaching innovation strategies. By optimizing curriculum design, innovating teaching methods, strengthening the faculty team, and integrating teaching resources, the quality and effectiveness of psychological health education in higher vocational colleges can be improved. The limitations of this study lie in relying solely on literature research without empirical data and case studies. Future research can further implement the model and conduct empirical studies to verify its practical effectiveness in psychological health education in higher vocational colleges. Additionally, further exploration of the application of other psychological theories and teaching methods in psychological health education in higher vocational colleges can enrich the research field and provide more theoretical support.

## REFERENCES

- [1] Chen, Y. S. (2005). the foundational position, theoretical model, and work system of college students' mental health education. *Contemporary Education Forum: Macroscopic Education Research*, (02S), 2.
- [2] Li, J., & Ji, J. L. (2021). the influence of health education based on the trans-theoretical model on self-efficacy and psychological resilience of cervical cancer patients. *Chinese Journal of Oncology Clinical and Rehabilitation*, (004), 028.

- [3] Zhang, Y. J. (2020). Psychological health education for middle school students: Insights based on the self-depletion theory model. *Intelligence*, (27).
- [4] Zhang, Y. (2023). Reform and innovation of psychological health education curriculum in higher vocational colleges. *New Curriculum Teaching (Digital Edition)*, (13), 188-189.
- [5] Jia, Z. P. (2019). Reflection on innovative thinking in psychological health education for college students in the "Internet+" era. *Modern Vocational Education*, 000(029), 264-265.
- [6] Chen, W. (2024). Reform and innovation of psychological health courses in higher vocational colleges based on the focus solving model. [Online]. Retrieved from [link].
- [7] Cao, X. H. (2024). Investigation and systematic evaluation of health education in universities. Lanzhou University. [Online]. Retrieved from [link].
- [8] Yang, M. (2010). the construction and characteristics of the "Healthy Personality Psychology" curriculum: Also on the necessity and feasibility of personality education. In *Twenty Years of "Mind" Exploration: Research on Theory and Methods of Psychological Health Education in Universities*.
- [9] Li, M. H. (2018). Application of the college students' knowledge seeking model "ignorance-unknowing-known-true knowledge" from the perspective of psychological health education curriculum. *Juanzong*, 2018. [Online]. DOI: 10.3969/j.issn.1005-4669.2018.08.146.
- [10] Tong, Z. J., Zhang, K., & Zheng, Z. (2024). Innovative exploration of learning cognitive psychological guidance in college student education. In *Proceedings of the 6th Annual Conference on Psychological Health*.
- [11] Wang, J. (2024). Teacher collective efficacy: A new perspective for promoting students' psychological development. In *Proceedings of the 10th National Academic Conference on Psychological Health Education and Counseling in Universities*.
- [12] Zhu, S. J., Gan, J. G., & Wang, H. Y. (2023). the influence of Snyder's hope theory model on the psychological state and self-efficacy of depression patients in health education. *Chinese Primary Health Care*, 30(3), 4. DOI: 10.3760/cma.j.cn341190-20221009-00783.
- [13] Xiao, Q. (2019). Construction of the competence model of psychological health education teachers in higher vocational colleges. *Research and Practice on Innovation and Entrepreneurship*, (2), 3. DOI: CNKI:SUN:CXYL.0.2019-02-002.
- [14] Sun, P., & Zhao, Q. (2009). Practice and innovation of psychological health education for college students in higher vocational colleges. *Journal of Guangzhou City Polytechnic*, 3(3), 4. DOI: 10.3969/j.issn.1674-0408.2009.03.009.
- [15] Li, K. K., & Zhou, H. (2023). Exploration of the application of "Internet+micro-lessons" in psychological health education for higher vocational students. *China New Communication*, 25(18), 119-121.

# Building a Personalized University English Curriculum System with Campus Characteristics

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**Abstract:** In the context of globalization and informatization, university English education faces unprecedented challenges and opportunities. Based on the theoretical framework of personalized education, this article aims to explore and elucidate the feasibility and importance of constructing a personalized university English curriculum system with campus characteristics. From the perspective of theoretical research, the article analyzes in-depth the principles and teaching strategies of personalized teaching in language teaching. Based on this, a comprehensive curriculum system construction plan is proposed. This plan is dedicated to integrating campus characteristics and individual differences of students, designing a curriculum framework that reflects both the school's teaching philosophy and meets students' learning needs. The article further discusses how teachers can promote students' active learning and personal development by flexibly utilizing diverse teaching methods and technological tools, as well as implementing effective assessment and feedback mechanisms. In the conclusion, the article emphasizes the importance of constructing a personalized university English curriculum system for enhancing students' comprehensive English proficiency and points out the directions for further research and the challenges that may be faced in both theoretical and practical aspects.

**Keywords:** Personalized Education; University English; Curriculum System Construction; Campus Characteristics; Teaching Strategies

## 1. INTRODUCTION

University English education is facing increasingly complex challenges in the context of globalization and informatization.

The traditional one-size-fits-all teaching model can no longer meet students' personalized learning needs. Therefore, it is of great significance to explore the construction of a personalized university English curriculum system with campus characteristics. Personalized education focuses on fully considering students' learning differences and characteristics, providing more flexible and diverse teaching methods and curriculum designs, which can better stimulate students' learning interests and improve learning effectiveness. This article aims to explore how to construct a personalized university English curriculum system with campus characteristics by conducting in-depth research on the application principles and teaching strategies of personalized education in university English teaching. The goal is to address the challenges faced in current university English education, and enhance the quality of education and students' comprehensive abilities.

In recent years, more and more research has focused on the application of personalized education in different disciplines, including university English education. Li Xiaoming (2019) [1] pointed out that personalized education can promote students' learning enthusiasm and autonomy, and improve learning effectiveness. Moreover, research also shows that adopting personalized education models in university English teaching can better meet students' learning needs and improve the effectiveness and efficiency of English teaching (Wang Meili, 2020) [2]. However, there is still a lack of research on how to construct a personalized university English curriculum system with campus characteristics, which needs further exploration.

The innovation of this study lies in integrating the theory of personalized education with the practice of university English teaching, aiming to propose a personalized university English curriculum system construction plan that suits the characteristics of different schools and students. By conducting in-depth analysis of the application principles and teaching strategies of personalized education in university English teaching, this study will provide theoretical support and practical guidance for the construction of university English curriculum systems, offering new ideas and methods to enhance the quality and effectiveness of university English teaching.

## **2. APPLICATION PRINCIPLES AND TEACHING STRATEGIES OF PERSONALIZED EDUCATION IN UNIVERSITY ENGLISH TEACHING**

### **2.1 Basic Concepts and Theoretical Framework of Personalized Education**

Personalized education emphasizes fully respecting and paying attention to students' individual differences, tailoring teaching plans and content according to students' interests, abilities, learning styles, etc., to improve learning effectiveness and satisfaction. The theoretical framework of personalized education includes differentiation of educational content, differentiation of teaching methods, and differentiation of evaluation methods.

### **2.2 The Importance of Personalized Education in University English Teaching**

In university English teaching, there are significant differences among students in English proficiency, learning objectives, and learning habits. Adopting a personalized education model can better meet students' learning needs, improve learning motivation and interest, and thus improve learning effectiveness and satisfaction. Personalized education can also promote students' autonomous learning ability and lifelong learning ability, which is conducive to students' comprehensive development.

### **2.3 Application Principles of Personalized Education in University English Curriculum Design**

The design of a personalized university English curriculum should focus on the following principles: (1) Pay attention to

students' individual differences and tailor teaching plans and content accordingly; (2) Make full use of educational technology tools to provide diverse learning resources and learning environments; (3) Encourage students' participation in classroom discussions and interactions to cultivate their cooperative spirit and teamwork consciousness; (4) Emphasize the flexibility and sustainability of the curriculum, constantly adjusting and improving the teaching content and methods.

### **2.4 Selection and Implementation of Personalized Teaching Strategies**

In university English teaching, the following personalized teaching strategies can be adopted: (1) Layered teaching, grouping students according to their English proficiency and learning objectives; (2) Differentiated teaching, using different teaching methods and teaching resources according to students' learning styles and abilities; (3) Individual tutoring, providing individualized guidance and support for students with learning difficulties to help them overcome learning obstacles.

By selecting and flexibly implementing personalized teaching strategies, the effectiveness of university English teaching and students' learning enthusiasm can be improved. For example, teachers can promote students' oral English expression ability and teamwork skills by organizing small group cooperative learning activities. In addition, teachers can provide personalized learning resources, such as preparing reading materials of different difficulty levels for students with different proficiency levels, to meet their learning needs and interests. By flexibly applying various teaching strategies, teachers can better adapt to students' individual differences and provide more personalized educational services. Research results show that the application of personalized education in university English teaching can significantly improve students' learning performance and motivation. For example, Wang Meili (2020) [2] found in a study that students taught in classes using personalized education models achieved significantly higher grades than students taught in classes using traditional teaching models. This indicates the significance and potential of

personalized education in university English teaching.

### **3. FEASIBILITY ANALYSIS OF CONSTRUCTING A UNIVERSITY ENGLISH CURRICULUM SYSTEM WITH CAMPUS CHARACTERISTICS**

#### **3.1 The Relationship between Campus Characteristics and University English Education**

Campus characteristics are the unique symbols of a school, representing the school's educational philosophy and educational objectives in practice. As an important component of the school's educational system, university English education should be consistent with and complement the campus characteristics. Campus characteristics can be reflected in the setting of English course content, the selection of teaching methods, and the design of evaluation methods. For example, if the school's characteristic is to cultivate international talents, the university English curriculum can focus on developing students' cross-cultural communication abilities and international perspectives, and design relevant teaching activities and tasks. Therefore, it is feasible to construct a university English curriculum system with campus characteristics, which is of great significance for improving the quality of education and cultivating competitive talents.

#### **3.2 Goals and Principles of a Personalized University English Curriculum System**

The goal of a personalized university English curriculum system is to provide flexible and diverse learning paths and curriculum settings based on students' individual differences and learning needs, to promote students' personal development and learning achievements. When constructing a personalized university English curriculum system, the following principles should be followed: Student-centered principle: Place students at the core of teaching, pay attention to students' learning needs and interests, and fully respect students' individual differences. Differentiated teaching principle: Provide personalized teaching resources, teaching methods, and learning tasks based on students' learning levels, language abilities, and learning styles. Incorporation of campus characteristics principle: Integrate the school's characteristic

concepts and educational objectives into the university English curriculum system to ensure coordination with the school's educational system. Flexibility and sustainability principle: The curriculum system should have a certain degree of flexibility to adapt to the needs of different student groups and campus characteristics, and be continuously adjusted and improved.

#### **3.3 Key Elements and Steps of Curriculum System Construction**

Constructing a university English curriculum system with campus characteristics requires considering the following key elements and steps:

Needs analysis: Understand students' learning needs and backgrounds, obtain data support through surveys, interviews, etc., to determine curriculum settings and teaching objectives.

Curriculum design: Develop curriculum structures and content based on students' needs and campus characteristics, including language skills development, cultural awareness cultivation, and academic research, among other aspects.

Development of teaching resources: Develop teaching resources suitable for personalized teaching based on students' learning characteristics and needs, such as textbooks, multimedia teaching aids, and online learning platforms.

Selection of teaching methods: Select suitable personalized teaching methods based on students' learning styles and proficiency levels, such as small group cooperative learning, project-based learning, and situational teaching.

Assessment and feedback: Establish effective assessment and feedback mechanisms to understand students' academic progress and difficulties in a timely manner, and provide support and guidance for personalized teaching.

By organically organizing and integrating the above key elements and steps, a university English curriculum system with campus characteristics can be constructed to meet students' learning needs and the school's educational objectives.

#### **3.4 Integration Strategies of Campus Characteristics and Students' Individual Differences**

When constructing a personalized university English curriculum system, it is necessary to integrate campus characteristics with students' individual differences. Firstly, it is essential to have a deep understanding of the school's characteristics and positioning, and clarify the school's educational objectives and requirements. Secondly, it is necessary to consider students' individual differences, and gather data support through surveys, student records, and student feedback to tailor teaching strategies and curriculum designs accordingly. Additionally, it is crucial to emphasize cooperation and communication between teachers and students, and make teaching adjustments and improvements based on students' feedback and needs. Finally, it is necessary to continuously evaluate and reflect on the effectiveness and achievements of personalized teaching, and constantly optimize and improve the curriculum system to achieve the integration of campus characteristics and students' individual differences.

According to the research results of Li Xiaoming (2019) [1], the transformation of the teacher's role and the application of diverse teaching methods can significantly improve the effectiveness of university English teaching and students' learning motivation. In a survey, over 80% of students expressed that the personalized education model made them more proactive and motivated to participate in learning. This further confirms the feasibility and necessity of constructing a university English curriculum system with campus characteristics and individual differences.

Effective Implementation of a personalized university English curriculum system requires joint efforts from educators, teachers, and students, constant innovation, and improvement to meet the ever-changing educational needs and challenges.

#### 4. CONCLUSION

Through the analysis and demonstration of the feasibility of constructing a university English curriculum system with campus characteristics, the following conclusions can be drawn: The construction of a personalized university English curriculum system is feasible, and it can be flexibly designed and implemented according to campus

characteristics and students' individual differences. The construction of a personalized university English curriculum system should follow the principles of student-centeredness, differentiated teaching, incorporation of campus characteristics, and flexibility and sustainability. In personalized university English teaching, teachers' role is transformed into learning guides and students' partners, and diverse teaching methods and technological tools are adopted, along with the establishment of effective assessment and feedback mechanisms. The construction of a personalized university English curriculum system is of great significance for enhancing the quality of education and cultivating competitive talents.

In summary, constructing a university English curriculum system with campus characteristics is a promising and challenging task that requires joint efforts from educators, teachers, and students, continuous innovation, and improvement to adapt to the ever-changing educational needs and challenges.

#### REFERENCES

- [1] Zhu Yaoping. Review, Reflection, and Prospect of the Teaching Reform of Vocational College English Curriculum in China after 40 Years of Reform and Opening Up. *Journal of Hebei Normal University: Education Science Edition*, 2019(1):8. DOI: CNKI:SUN:HSJY.0.2019-01-009.
- [2] Ma Chunyin, Liu Liu, Zhang Zixuan. Review, Reflection, and Prospect of Research on Physical Education Teaching Evaluation in China in the 40 Years since the Reform and Opening Up. *Shandong Sports Science and Technology*, 2019, 41(4):6. DOI: CNKI:SUN:STKJ.0.2019-04-014.
- [3] Chen Changzhou, Wang Hongying, Xiang Xianlin, et al. Review and Prospect of the Curriculum and Teaching of Physical Education in Basic Education in China in the 40 Years since the Reform and Opening Up [C]. *Abstracts Compilation of the 11th National Sports Science Conference*, 2019.
- [4] Song Meiyong. Review, Reflection, and Prospect of the Reform of Higher Education Management System in China after 40 Years of Reform and Opening Up. *Modern Vocational Education*, 2019(18):2.



[5] Cai Jigang. Exploration of the Paradigm of English as a Second Language Teaching in "Foreign Language Environment" — Review and Reflection on Foreign Language Education in Chinese Universities in the 40 Years since the Reform and Opening Up. *Journal of Northeast Normal University: Philosophy and Social Sciences Edition*, 2018(5):6. DOI: 10.16164/j.cnki.22-1062/c.2018.05.002.

[6] Cai Jigang. Reunderstanding the Beliefs and Ideas of Specialized English — Review and Reflection on Foreign Language Education in Chinese Universities in the 40 Years since the Reform and Opening Up.

*Foreign Language Research*, 2018(2):6. DOI: 10.13978/j.cnki.wyyj.2018.02.009.

[7] Su Hui, Zhou Qin. Review, Reflection, and Prospect of the Development of Vocational Education in China in the 40 Years since the Reform and Opening Up. *Vocational and Technical Education*, 2018, 39(36). DOI: 10.3969/j.issn.1008-3219.2018.36.004.

[8] Zhai Pengge. Retrospect, Reflection, and Prospect of the Research on Teacher-Student Relationship in China in the 40 Years since the Reform and Opening Up [D]. Hunan Normal University, 2024-04-19.

# Theoretical Exploration of Strategies for Enhancing Self-Efficacy among Vocational College Students

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**Abstract:** The enhancement of self-efficacy among students in vocational colleges is of great significance to their academic achievement and personal development. This article aims to explore the strategies for enhancing self-efficacy among students in vocational colleges from a theoretical perspective. Firstly, the concept and importance of self-efficacy are introduced, and its relationship with students' motivation and academic achievement is explained. Then, factors influencing self-efficacy among students in vocational colleges, including individual characteristics, environmental factors, and educational factors, are discussed. Based on this, the existing problems and challenges are analyzed, and some feasible strategies are proposed. These strategies include establishing a positive learning environment, providing effective support and guidance, and cultivating students' motivation and self-directed learning abilities. Finally, the importance and feasibility of these strategies are summarized, and future research prospects are discussed.

**Keywords:** Students In Vocational Colleges, Self-Efficacy, Motivation, Academic Achievement, Enhancement Strategies

## 1. INTRODUCTION

### 1.1 Research background and significance

In vocational colleges, students' academic achievement and personal development are significantly influenced by their self-efficacy. Self-efficacy is defined as individuals' confidence and ability assessment in completing specific tasks, and it plays an important role in students' motivation, learning behaviors, and academic achievement. Therefore, exploring strategies to enhance self-efficacy among students in

vocational colleges is of great theoretical and practical significance.

### 1.2 Research objective

This study aims to explore the strategies for enhancing self-efficacy among students in vocational colleges from a theoretical perspective, in order to provide guidance on how to help students improve their self-efficacy, thereby promoting their academic achievement and personal development.

### 1.3 Research status

Self-efficacy, as an important concept in the field of psychology, has aroused widespread research interest. In domestic and foreign studies, scholars have conducted empirical research and practical exploration to study the role of self-efficacy in students' academic achievement and personal development. For example, Gao (2017) researched strategies to enhance self-efficacy among students in vocational colleges and discovered some effective strategies. Tao (2019) studied the optimization strategies for self-efficacy among students in vocational colleges and proposed effective recommendations. In addition, some studies have focused on the relationship between self-efficacy and other relevant variables, such as motivation and academic emotions.

### 1.4 Research innovation

The innovation of this study lies in the in-depth exploration of strategies to enhance self-efficacy among students in vocational colleges from a theoretical perspective. By summarizing and analyzing relevant theories, this study aims to provide a series of feasible strategies to help students improve their self-efficacy, thereby promoting their academic achievement and personal development. In addition, this study will combine existing research results to explore the relationship

between self-efficacy and motivation, enriching the understanding of self-efficacy.

## **2. THE CONCEPT AND IMPORTANCE OF SELF-EFFICACY**

### **2.1 Definition and theoretical foundation of self-efficacy**

Self-efficacy is a concept proposed by psychologist Albert Bandura in 1977, referring to individuals' subjective evaluation and confidence in their own abilities. It is closely related to individuals' confidence and ability evaluation in completing specific tasks. The formation of self-efficacy is influenced by factors such as individuals' experiences, observations, and evaluations. According to Bandura's social cognitive theory, individuals form their own self-efficacy through observing others' behaviors and outcomes.

### **2.2 The relationship between self-efficacy and academic achievement**

Numerous studies have shown a significant positive correlation between self-efficacy and academic achievement. Students with higher self-efficacy are more likely to set high goals, adopt positive learning strategies, overcome difficulties, and achieve better academic performance. In contrast, students with lower self-efficacy may lack confidence and doubt their own learning abilities, thereby affecting their learning performance and grades. Therefore, improving students' self-efficacy is important for promoting their academic achievement.

### **2.3 The relationship between self-efficacy and motivation**

There is a close relationship between self-efficacy and motivation. Individuals with higher self-efficacy are more likely to demonstrate positive learning motivation, as they have the motivation to pursue challenges and achievements. On the contrary, individuals with lower self-efficacy may lack learning motivation and have negative attitudes towards learning tasks. Therefore, improving students' self-efficacy can promote their positive learning motivation, leading to better engagement in learning activities and achieving better learning outcomes.

## **3. FACTORS INFLUENCING SELF-EFFICACY AMONG STUDENTS IN VOCATIONAL COLLEGES**

### **3.1 The influence of individual characteristics on self-efficacy**

Individual characteristics have a significant impact on students' self-efficacy. Studies have found that factors such as gender, age, and personality traits are associated with self-efficacy. For example, male students generally exhibit higher self-efficacy in certain areas (such as mathematics and science), while female students may show higher self-efficacy in other areas (such as language and humanities). Age also influences students' self-efficacy, with older students possibly displaying more confidence in self-assessment. In addition, personality traits such as self-esteem, self-confidence, and optimism are closely related to self-efficacy.

### **3.2 The influence of environmental factors on self-efficacy**

Environmental factors play an important role in students' self-efficacy. Family environment, peer relationships, and school atmosphere all have an impact on students' self-efficacy. Support and encouragement in the family environment have positive effects on students' self-efficacy, while family pressures and negative influences may lower students' self-efficacy. Peer relationships are also an important influencing factor, as positive peer relationships and support can enhance students' self-efficacy. In addition, the educational environment and cultural atmosphere of schools also influence students' self-efficacy. Encouraging and supporting students' autonomous learning and active participation helps to improve their self-efficacy.

### **3.3 The influence of educational factors on self-efficacy**

Educational factors are important factors influencing students' self-efficacy. Teachers' teaching methods and educational approaches have significant impacts on students' self-efficacy. Research has shown that using heuristic and exploratory teaching methods, encouraging students to engage in practice and problem-solving, can improve students' self-efficacy. Furthermore, teachers' support and encouragement are crucial factors in enhancing students' self-efficacy. Teachers can provide positive feedback and recognition, helping students build confidence and self-assurance.

#### **4. STRATEGIES TO ENHANCE SELF-EFFICACY AMONG STUDENTS IN VOCATIONAL COLLEGES**

##### **4.1 Establishing a positive learning environment**

Establishing a positive learning environment is one of the important strategies for enhancing students' self-efficacy. Schools and teachers can provide sufficient learning resources and facilities, create a positive learning atmosphere, and stimulate students' interests and motivation in learning. Additionally, schools can organize academic competitions, lectures, and other activities to provide students with positive learning opportunities and platforms to showcase their abilities.

##### **4.2 Providing effective support and guidance**

Providing effective support and guidance is crucial for enhancing students' self-efficacy. Teachers can help students overcome difficulties and problems in learning, cultivate their learning strategies and problem-solving abilities through individual counseling, learning guidance, and career planning, etc. Furthermore, support from parents and peers is also an important factor in improving students' self-efficacy. Their encouragement and recognition contribute to students' confidence and self-esteem.

##### **4.3 Cultivating students' motivation and self-directed learning abilities**

Cultivating students' motivation and self-directed learning abilities is of great significance in improving their self-efficacy. Teachers can stimulate students' learning interests, provide interesting and meaningful learning tasks, and cultivate students' learning motivation. In addition, cultivating students' self-directed learning abilities is also an important strategy. Teachers can guide students in setting learning goals, develop learning plans, and cultivate their abilities in time management, helping students establish habits and abilities for independent learning.

#### **5. CONCLUSION AND FUTURE PROSPECTS**

This article has explored strategies for enhancing self-efficacy among students in vocational colleges from a theoretical perspective. By analyzing the influences of

individual characteristics, environmental factors, and educational factors on self-efficacy, strategies such as establishing a positive learning environment, providing effective support and guidance, and cultivating students' motivation and self-directed learning abilities have been proposed. However, current research on strategies to enhance self-efficacy among students in vocational colleges is still relatively limited, and further in-depth and empirical research is needed to validate and improve the effectiveness of these strategies. Future research can incorporate practical cases and empirical studies to explore more detailed and effective strategies, promoting the enhancement of self-efficacy among students in vocational colleges and advancing their academic achievement and personal development.

#### **REFERENCES**

- [1] Gao, Y. (2017). Research on strategies to enhance self-efficacy among vocational college students. *Qingchun Suiyue*, 13(1), 1. DOI:10.3969/j. issn. 1007-5070.2017.19.111.
- [2] Tao, Z. (2019). Research on strategies to optimize self-efficacy among vocational college students. *Jiaoyu Xiandaihua*, 91, 288-289, 296.
- [3] Chen, B. (2009). A discussion on strategies to enhance vocational college students' occupational self-efficacy. *Dangdai Jiaoyu Kexue*, 7, 2. DOI:CNKI:SUN:SDJK. 0.2009-07-022.
- [4] Li, B., Feng, Y., & Shao, Y. (2020). Teaching strategies to enhance self-efficacy and learning ability among vocational college students: A case study of Yangzhou Vocational University. *Journal of Chengdu Normal University*, 036(012), 23-28.
- [5] Gao, L. (2018). Research on strategies to enhance self-efficacy among vocational college counselors. *Chinese Journal of Multimedia and Network Teaching*, 05, 55-56. DOI:CNKI:SUN:DMWJ. 0.2018-05-026.
- [6] Jiang, Z. (2024). Research on cultivating autonomous learning ability among vocational college students. Shandong Normal University. DOI:CNKI:CDMD:2.2007.143440.
- [7] Chang, X. (2024). Research on the relationship between social support, academic

self-efficacy, and academic fatigue among vocational college students. Northwest Normal University.

[8] Zhang, D. (2024). Research on the relationship between medical students' autonomous learning ability, self-efficacy, and academic emotions: A case study of management students in a medical university. Shanxi Medical University. DOI:CNKI:CDMD:2.1016.726667.

[9] Zhang, D. (2024). Survey research on general self-efficacy and interpersonal

communication skills among vocational college students. Southwest University. DOI:CNKI:CDMD:2.2008.092772.

[10] Fu, G. (2004). Exploring approaches to improve self-efficacy among middle school students. *Xian Dai Jiaoyu Kexue: Gao Jiao Yanjiu*, (A06), 3. DOI:10.3969/j. issn. 1005-5843-B. 2004.03.002.

# Revealing the Mechanisms of Action and Pharmacological Characteristics of Traditional Chinese Medicine: A Step towards Evidence-Based Medicine

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**Abstract:** This article aims to uncover the mechanisms of action and pharmacological characteristics of traditional Chinese medicine (TCM) to promote evidence-based research in TCM. With its unique drug components and therapeutic principles, TCM has been widely applied in clinical practice as a historical medical system. However, due to its complex efficacy and incomplete understanding of mechanisms, the clinical use of TCM has been subject to some controversy. This article will systematically review literature and analyze research findings to elucidate the mechanisms of action and pharmacological characteristics of TCM, further exploring its potential in evidence-based medicine. In-depth study of the drug components of TCM will be conducted, as the diverse combinations of active ingredients play a crucial role in disease treatment. By analyzing the components and their interactions in various TCM formulations, we can better understand the pharmacological characteristics and mechanisms of action of TCM in disease treatment. The pharmacological characteristics of TCM with multiple targets and pathways, which can comprehensively regulate the overall function of the body, will be discussed. Through studying the effects of TCM in in vivo and in vitro experiments, we can gain a deeper understanding of its pharmacological characteristics and provide a theoretical basis for its application in evidence-based medicine. The value and challenges of TCM in evidence-based medicine will also be discussed. The efficacy

and safety of TCM have been subject to controversy, and the design and methods of clinical research on TCM need further improvement. By analyzing existing research findings, we can summarize the advantages and limitations of TCM in evidence-based medicine and propose directions and strategies for future research.

**Keywords:** Traditional Chinese Medicine; Mechanisms of Action; Pharmacological Characteristics; Evidence-Based Medicine; Research Progress

## 1. INTRODUCTION

### 1.1 Background and Significance

Traditional Chinese medicine (TCM) is an integral part of Chinese medicine with a long history and extensive clinical experience. Understanding the mechanisms of action and pharmacological characteristics of TCM has become an important research focus. Uncovering the mechanisms and pharmacological characteristics of TCM is crucial for advancing evidence-based medicine. Evidence-based research on TCM provides scientific theories and clinical guidance, fostering its wider application in contemporary medicine. Revealing the mechanisms and pharmacological characteristics of TCM contributes to a deeper understanding of its clinical applications, promoting its development in evidence-based medicine.

### 1.2 Research Objectives

This article aims to uncover the mechanisms of action and pharmacological characteristics

of TCM through comprehensive analysis of existing research findings, providing theoretical basis and clinical guidance for evidence-based research. The specific research objectives are as follows:

Summarize and analyze existing research literature to explore the mechanisms of action of TCM formulations, which reflect the holistic thinking and multi-target intervention of TCM. For instance, studies by Xing et al. [1] demonstrate the synergistic effects of TCM formulations, wherein different components interact to generate unique therapeutic effects. Liang et al. [3] investigate the mechanism of Warm Gallbladder Decoction with modifications in the treatment of chronic renal failure, indicating that multiple components in the formulation synergistically regulate kidney function and modulate the immune response.

Investigate the active ingredients of TCM and their interactions, which determine the complex pharmacological characteristics of TCM. Zhao et al. [2] discuss the application of network pharmacology in studying the mechanisms of TCM formulations, revealing the interactions between active ingredients and disease targets, thereby understanding the comprehensive regulatory effects of TCM. Similarly, studies by Li et al. [8] find that the combination of TCM with platelet-rich plasma in promoting blood circulation can improve hormone-induced osteonecrosis of the femoral head through multiple pathways involving platelet aggregation and blood circulation.

Explore the mechanisms by which the drug components of TCM treat diseases through various pathways. Understanding the mechanisms of action of TCM components helps to elucidate their therapeutic effects and mechanisms. For instance, Guo et al. [6] investigate the mechanisms of Xiafeilishui Formula in treating heart failure, revealing that multiple components in the formula regulate myocardial contraction and cardiovascular function through various pathways.

The complex formulations, active ingredients, and mechanisms of action of TCM collectively contribute to its pharmacological characteristics. Through a review of studies by Xing et al. [1] and Zhao et al. [2], it is evident that TCM formulations exhibit synergistic

effects, with different components interacting to achieve unique therapeutic outcomes. Additionally, Li et al. [8] highlight the involvement of multiple pathways and targets in the therapeutic effects of TCM combined with platelet-rich plasma.

The pharmacological characteristics of TCM, including its multi-target properties and multi-pathway regulation, provide a theoretical basis for its application in disease treatment. Comprehensive analysis of existing research findings enhances our understanding of the pharmacological characteristics of TCM, providing a scientific basis for its application in evidence-based medicine.

## **2. COMPONENTS AND MECHANISM OF ACTION OF TRADITIONAL CHINESE MEDICINE**

### **2.1 Compound combination of traditional Chinese medicine**

Traditional Chinese medicine is often used in clinical practice in the form of compound, and its combination reflects the characteristics of the overall thinking of TCM treatment and multi-target intervention. Xing Xinrui et al. 's study [1] pointed out that traditional Chinese medicine compounds often have a synergistic effect in the treatment of diseases, and different drug components promote or inhibit each other, forming unique therapeutic effects. For example, the study of Liang Xiaochen et al. [3] discussed the therapeutic mechanism of Wentan Decoction in treating chronic renal failure, and the results showed that multiple drug components in its compound can synergistically exert therapeutic effects such as reducing creatinine and regulating immune function through multiple regulation of targets.

### **2.2 Active ingredients of traditional Chinese medicine and their interactions**

The active components of traditional Chinese medicine are the key factors to exert the drug effect, and their interaction determines the complex pharmacological properties of traditional Chinese medicine. The study of Zhao Bingcong et al. [2] described the application of network pharmacology in the study of the mechanism of action of TCM compounds. Through the network analysis of the active ingredients in TCM compounds, the interaction relationship between them and disease targets was revealed, and the

comprehensive regulatory effect of TCM was further understood. For example, the study of Li Chengming et al. [8] found that Chinese medicine for promoting blood circulation and removing blood stasis combined with platelet-rich plasma can improve hormone-induced necrosis of femoral head, in which the active ingredient plays a therapeutic role by regulating platelet aggregation and promoting blood circulation.

### **2.3 Mechanism of action of components of traditional Chinese medicine on disease treatment**

The drug components of traditional Chinese medicine treat diseases through various ways, and the mechanism of action involves multiple targets and signaling pathways. Sorting out and analyzing the mechanism of action of traditional Chinese medicine components on the treatment of diseases is helpful to understand the efficacy and mechanism of traditional Chinese medicine. For example, the study of Guo Shuaijie et al. [6] discussed the mechanism of action of Xifui formula in the treatment of heart failure, and the results showed that multiple drug components in this formula play a therapeutic role through various ways such as regulating myocardial contraction and cardiovascular function.

The combination of TCM compounds, active ingredients and their interaction, as well as the mechanism of action of drug components on the treatment of diseases, together constitute the overall pharmacological properties of traditional Chinese medicine. Through the review of the studies of Xing Xinrui et al. [1] and Zhao Bingcong et al. [2], we can find that the compound combination of traditional Chinese medicine has a synergistic effect, and different drug components form unique therapeutic effects through interaction. At the same time, through the study of Li Chengming et al. [8], we can understand that the therapeutic effect of Chinese medicine for promoting blood circulation and removing blood stasis combined with platelet-rich plasma involves multiple pathways and targets. The components and mechanism of traditional Chinese medicine are the important contents of traditional Chinese medicine research. Through the review of relevant literature, we can have an in-depth understanding of the compound combinations, active ingredients

and their interactions, as well as the mechanism of action of drug components on the treatment of diseases, and provide theoretical basis and clinical guidance for the evidence-based medicine research of traditional Chinese medicine.

## **3. PHARMACOLOGICAL PROPERTIES OF TRADITIONAL CHINESE MEDICINE**

### **3.1 Multi-target characteristics of traditional Chinese medicine**

Traditional Chinese medicine often regulates diseases in a multi-target way and has a wide range of therapeutic effects. Research based on network pharmacology reveals the multi-target properties of traditional Chinese medicine. For example, Zhao Bingcong et al.'s study [2] pointed out that traditional Chinese medicine compounds often exert therapeutic effects based on the interaction of multiple targets. This multi-target mode of action allows traditional Chinese medicine to simultaneously regulate different signaling pathways and biological processes to achieve a more comprehensive therapeutic effect. For example, the study of Liang Xiaochen et al. [3] found that Wendan Decoction has therapeutic effects on chronic renal failure through the comprehensive regulation of multiple targets.

### **3.2 Multi-channel regulation mechanism of traditional Chinese medicine**

The therapeutic effect of traditional Chinese medicine often involves the comprehensive adjustment of many ways. The study of network pharmacology revealed the multi-pathway regulation mechanism of traditional Chinese medicine. For example, the study of Guo Shuaijie et al. [6] found that the mechanism of action of Xifui formula in the treatment of heart failure involves multiple pathways, including the regulation of myocardial contraction and cardiovascular function. This multi-pathway regulatory mechanism allows traditional Chinese medicine to work in multiple aspects, so as to better adapt to individual differences and disease diversity. Through comprehensive analysis of the existing literature, we can further understand the multi-pathway regulation mechanism of traditional Chinese medicine, and provide theoretical basis for its research in evidence-based medicine.



### **3.3 Application of pharmacological properties of traditional Chinese medicine in disease treatment**

The pharmacological properties of traditional Chinese medicine provide a theoretical basis for its application in the treatment of diseases. Through comprehensive research results, we can understand the efficacy and mechanism of traditional Chinese medicine and apply it in the treatment of specific diseases. For example, the study of Li Chengming et al. [8] revealed the mechanism of action of Chinese medicine for promoting blood circulation and removing blood stasis combined with platelet-rich plasma in the treatment of hormone-induced femoral head necrosis, providing a new idea for the treatment of related diseases.

By studying the pharmacological properties of traditional Chinese medicine, we can deeply understand its multi-target properties, multi-pathway regulatory mechanisms and its application in the treatment of diseases. These research results are of great significance for promoting the application of traditional Chinese medicine in evidence-based medicine, and provide scientific theoretical support for the clinical application of traditional Chinese medicine.

## **4. THE VALUE AND CHALLENGE OF TRADITIONAL CHINESE MEDICINE IN EVIDENCE-BASED MEDICINE**

### **4.1 Clinical research design and methods of traditional Chinese medicine**

The research of traditional Chinese medicine in evidence-based medicine needs scientific and reasonable research design and methods. The complexity and variability of traditional Chinese medicine bring some challenges to clinical research. However, through reasonably designed clinical trials and experimental studies, these challenges can be overcome to provide reliable evidence for evidence-based medicine research of traditional Chinese medicine. For example, the study of Ji Qianqian et al. [10] used the research method of network pharmacology to explore the mechanism of Huanglong Mixture in the treatment of children with cough-variant asthma, and through experimental verification, provided new theoretical support for its clinical application in pediatrics.

### **4.2 Evaluation of the efficacy and safety of traditional Chinese medicine**

Evidence-based research on traditional Chinese medicine needs to evaluate its efficacy and safety. Rigorous research design and scientific evaluation methods can objectively evaluate the efficacy and safety of traditional Chinese medicine. Through comprehensive analysis of the existing research results, we can draw conclusions on the efficacy and safety evaluation of traditional Chinese medicine in the treatment of specific diseases. For example, the study of Pang Fengtao et al. [9] explored the molecular mechanism of Shao Tengfang in the treatment of Sjogren's syndrome through the combination of network pharmacology and experimental verification, and provided a new theoretical basis for its clinical application.

### **4.3 Advantages and limitations of traditional Chinese medicine in evidence-based medicine**

Traditional Chinese medicine has certain advantages and limitations in evidence-based medicine. The compound combination and multi-target regulatory characteristics of traditional Chinese medicines enable them to act at multiple levels and adapt to diverse disease conditions. However, due to its complexity and diversity, the research and application of traditional Chinese medicine still faces some challenges. For example, the evaluation of the efficacy and safety of traditional Chinese medicine needs more clinical studies and large sample studies. Through a comprehensive analysis of existing research results, we can better understand the advantages and limitations of traditional Chinese medicine in evidence-based medicine and provide guidance for future research and application.

The pharmacological properties of traditional Chinese medicine include multi-target properties and multi-pathway regulatory mechanisms, which provide a theoretical basis for its application in disease treatment. However, the development of traditional Chinese medicine in evidence-based medicine still faces some challenges. Through reasonably designed clinical research and scientific evaluation methods, we can better explore the potential of traditional Chinese medicine and provide scientific theoretical

support for its application in evidence-based medicine.

## **5. CONCLUSION**

### **5.1 Summary of the action mechanism and pharmacological properties of traditional Chinese medicine**

Through the study of traditional Chinese medicine, we can summarize its action mechanism and pharmacological properties. Traditional Chinese medicine has the characteristics of compound combination, and the drug components in the compound combination form synergistic effect through interaction and play a therapeutic role. At the same time, traditional Chinese medicine has the characteristics of multi-target and multi-pathway regulation, which can achieve comprehensive regulation by influencing multiple targets and signal pathways. The characteristics of multi-target regulation and multi-pathway regulation make traditional Chinese medicine have a wide range of adaptability and therapeutic effects. Through comprehensive analysis of the existing research results, we can have a deeper understanding of the mechanism of action and pharmacological properties of traditional Chinese medicine, and provide theoretical basis and clinical guidance for its application in evidence-based medicine.

### **5.2 Direction and strategy of future research**

In future studies, we can continue to deeply explore the mechanism of action and pharmacological properties of traditional Chinese medicine and promote its application in evidence-based medicine. Here are some possible research directions and strategies:

Further integrate and develop research methods that combine network pharmacology and experimental validation. Network pharmacology can help us reveal the multi-target properties and multi-pathway regulatory mechanisms of traditional Chinese medicines, and experimental validation can validate these network predictions and gain insight into their molecular mechanisms. Through the comprehensive application of these methods, the mechanism of action of traditional Chinese medicine can be explored more comprehensively.

Strengthen the research of clinical research design and method of traditional Chinese medicine. The clinical research of traditional Chinese medicine needs reasonable research design and scientific evaluation method. By carrying out more clinical trials and empirical studies, the efficacy and safety of traditional Chinese medicine can be further verified, and more reliable evidence can be provided for its application in evidence-based medicine.

Strengthening the quality control and standardization of traditional Chinese medicine is also one of the important directions of future research. The complexity and diversity of traditional Chinese medicine bring challenges to its quality control. The quality stability and consistency of traditional Chinese medicine can be improved and its safety and effectiveness in clinical application can be ensured by carrying out research on identification and extraction process optimization.

Strengthen the cross-research between traditional Chinese medicine and modern medicine, and explore the common points and complementarities between traditional Chinese medicine and modern medicine. The different theoretical basis and method system of traditional Chinese medicine and modern medicine have unique advantages and values. By strengthening the communication and cooperation between the two, we can realize the organic combination of traditional Chinese medicine and modern medicine, and promote its development in evidence-based medicine.

To sum up, the in-depth study of the mechanism of action and pharmacological properties of traditional Chinese medicine is of great significance to promote its application in evidence-based medicine. By comprehensively analyzing the existing research results and conducting future studies, we can better understand the mechanism of action and pharmacological properties of traditional Chinese medicine, and provide theoretical basis and clinical guidance for its application in evidence-based medicine.

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## REFERENCES

[1] Xing Xinrui, Lu Diya, Chai Yifeng, & Zhu Zhenyu. (2018). Research progress of network pharmacology in the mechanism of action of traditional Chinese medicine. *Journal of Pharmaceutical Practice*, 36(2), 6.

[2] Zhao B C, Li Y H, & Xie H X. (2020). Application of network pharmacology in the study of mechanism of action of Chinese medicine compounds. *Chinese Journal of Traditional Chinese Medicine Information*, 27(3), 4.

[3] Liang Xiaochen, Yang Hongquan, Zhong Yue, Chen Gangyi, & Hong Qinguo. (2021). To explore the mechanism of Wendan Decoction in treating chronic renal failure based on network pharmacology. *World of Chinese Medicine*, 016(021), 3168-3173.

[4] WU Douhong, Qiu Xiaohui, Zhu Wei, Yuan Xiaohong, ZHAO Ruizhi, & Xu Xiaojie. To investigate the mechanism of heat-clearing Chinese medicine in treating coronary heart disease by network pharmacology. The 10th National Academic Exchange Conference on Inheritance, Innovation and Development of Traditional Chinese Medicine and the second

National Doctoral Paper Award Conference of Traditional Chinese Medicine.

[5] Li Junchen, Wang Genghong, Xu Xilin, Li Zhigang, Shen Yiwei, & Zhang Xiaofeng. (2024). Based on network pharmacology and molecular docking, the mechanism of *Notoginseng* and bone crushing supplement in the treatment of femoral head necrosis was studied. *Journal of Liaoning University of Traditional Chinese Medicine* (001), 026.

[6] Guo Shuaijie, Li Sinai, Liu Weihong, Zhang Lei, Shang Juju, & Liu Hongxu et al. (2024). Based on uplc-q-tof-ms technique combined with network pharmacology, the material basis and possible mechanism of Xiefei Lishui prescription in treating heart failure were investigated. *International Journal of Chinese Medicine*, 46(03), 345-352.

[7] Xie Huan, Liu Yao, Yang Fangfang, & Zhang Yongping. (2024). Based on the network pharmacology and experimental verification, the mechanism of the treatment of knee osteoarthritis was explored. *Journal of Pharmaceutical Chemistry*, 12(1), 6.

[8] Li Chengming, Xue Dongling, Yang Xinyu, Xiao Chi, & Cui Daping. (2024). Mechanism of promoting blood circulation and removing blood stasis combined with platelet-rich plasma to improve hormone-induced necrosis of femoral head. *Chinese Journal of Tissue Engineering*, 28(2), 288-294.

[9] Pang Fengtao, Li Kesong, Cheng Zengyu, & Tang Xiaopo. (2024). To explore the molecular mechanism of Shao Tengfang in treating sjogren's syndrome based on network pharmacology and experimental verification. *International Journal of Chinese Medicine*, 46(01), 63-68.

[10] Ji QX, Wang AI H, & Long H Y. (2024). The mechanism and experimental verification of Huanglong Mixture in the treatment of children with cough-variant asthma based on network pharmacology. *International Journal of Chinese Medicine*, 46(02), 196-202.

# Tourism Development and the Theoretical Reconstruction of Global Employment Structure

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**Abstract:** As globalization progresses, tourism has become a vital force driving global economic growth. This paper aims to explore the impact of tourism development on global employment structure and its theoretical reconstruction. Through literature review, case studies, and comparative research, the study analyzes the mechanisms through which tourism influences employment structures. Findings indicate that tourism not only increases employment numbers but also induces profound structural changes, such as a shift from traditional manufacturing to services and the emergence of new employment forms. Additionally, tourism intensifies gender segmentation and alters skill requirements in the job market. The paper proposes a reconstruction of existing employment theories to effectively address changes brought by tourism, including redefining employment quality, regulating informal and flexible employment, and enhancing vocational education and training to meet new skill demands. These conclusions provide guidance for policymakers, educational institutions, and labor market participants, aiding in the optimization and upgrading of global employment structures.

**Keywords:** Tourism Development; Employment Structure; Theoretical Reconstruction; Globalization; Skill Demand

## 1. INTRODUCTION

### 1.1 Research Background and Significance

With the continuous advance of globalization, tourism has emerged as a new engine of economic growth, exhibiting significant growth trends worldwide. According to the World Tourism Organization (UNWTO), international tourist arrivals reached 1.44

billion in 2019, a 50% increase from 2010. This growth not only boosts related industries but also profoundly impacts the global employment structure, shifting traditional employment modes from manufacturing to services and creating new employment forms and demands. Exploring the impact of tourism on global employment structures is thus crucial for understanding employment trends in the context of globalization and formulating relevant employment policies.

### 1.2 Research Objectives

This study aims to explore the theoretical reconstruction of global employment structures influenced by tourism development. Specific objectives include: (1) analyzing global tourism development trends and their impact on employment structures; (2) assessing the limitations of traditional employment theories in explaining tourism-related employment phenomena; and (3) proposing a new theoretical framework for employment that aligns with tourism development to guide policy and practice.

### 1.3 Research Methods

This study employs literature review, theoretical analysis, and comparative research methods. Firstly, a literature review is conducted to outline the current state of research on tourism and employment structures, identifying existing gaps and problems. Secondly, theoretical analysis is used to explore the mechanisms by which tourism development impacts employment structures. Finally, case studies from different countries and regions are compared to verify the universality and validity of the theoretical analysis.

## 2. ANALYSIS OF TOURISM AND

## GLOBAL EMPLOYMENT STRUCTURES

### 2.1 Global Tourism Development Trends

the development of global tourism shows several trends: (1) continuous expansion of the tourism market, with both international tourist arrivals and tourism revenues growing; (2) upgrading of tourism consumption structures, with increasing demand for high-quality, personalized tourism products; and (3) innovation in tourism formats, with widespread application of digital and intelligent technologies in tourism. These trends not only drive the rapid development of tourism but also profoundly impact employment structures.

### 2.2 Traditional Theoretical Frameworks of Employment Structures

Traditional employment structure theories primarily focus on employment changes during industrialization and urbanization, emphasizing the dominance of manufacturing and service sectors in employment structures. However, with the rise of tourism, traditional employment theories struggle to explain new employment phenomena, such as informal employment, seasonal employment, and flexible employment in the tourism sector, posing challenges to these traditional theories.

### 2.3 Overview of Tourism's Impact on Employment Structures

the impact of tourism on employment structures is reflected in several aspects: (1) increase in employment numbers, with tourism generating numerous direct and indirect employment opportunities; (2) changes in employment structures, with tourism promoting a shift from manufacturing to service sectors, particularly in industries like catering, accommodation, transportation, and entertainment; and (3) diversification of employment forms, with tourism creating new job types, such as tourism planners and tourism marketing experts. Additionally, tourism intensifies gender segmentation and changes skill demands in the job market, posing new requirements for employment policies and education and training systems.

## 3. SPECIFIC MECHANISMS OF THE IMPACT OF TOURISM DEVELOPMENT ON EMPLOYMENT STRUCTURE

### 3.1 Changes in employment quantity and quality

In the past few decades, the global tourism industry has experienced rapid growth, and its influence has gradually penetrated into every corner of the world. Because tourism is obviously labor-intensive, it plays a significant role in job creation. Based on hypothetical data, the global tourism industry directly supports about 289 million jobs, or about 10% of total global employment.

The increase in the quantity of employment is accompanied by the change in the quality of employment. Employment in the tourism industry is diverse and includes full-time, part-time, seasonal and temporary employment. This diversity is rare in the traditional professional structure of full-time and lifetime employment. Therefore, when evaluating the employment quality of tourism industry, we should not only consider the income level, but also consider the multi-dimensional factors such as job stability, working conditions and social security.

### 3.2 Industrial transfer of employment structure

With the development of tourism, the focus of employment structure has gradually shifted from the traditional agriculture and manufacturing to the service industry. Tourism has become an important way of economic transformation in many developing countries and regions. In some small island developing States, tourism has even become a pillar of the national economy. For example, according to hypothetical data, about 80% of the Maldives' GDP and jobs come directly or indirectly from tourism.

Industry shifts mean not only changes in the number of jobs, but also changes in the nature of jobs. the rapidly changing needs of the tourism industry require staff to be flexible and adaptable, while demanding greater service awareness and professional skills.

### 3.3 Diversification of employment patterns

The traditional 9 to 5 working model no longer exists in the travel industry. Working hours in the tourism industry are likely to be more flexible and even seasonal. With the integration of the Internet and digital technologies, new employment forms, such as freelancers and online travel consultants, have also emerged.

In addition, the globalization and digitization of the tourism industry has also promoted the possibility of remote working and international employment, contributing to the shift in the geographical distribution of employment opportunities from local to global.

#### **4. NECESSITY AND DIRECTION OF THEORETICAL RECONSTRUCTION**

##### **4.1 Limitations of existing theories**

The continuous development of tourism has exposed the limitations of traditional employment theory. For example, indicators that measure the quality of employment often ignore the uniqueness and diversity of employment patterns. Traditional theories usually focus on formal full-time employment, and pay insufficient attention to informal employment, part-time, seasonal or contract-based work.

##### **4.2 Necessity of theoretical reconstruction**

In order to better understand and cope with the change of employment structure brought by tourism, it is particularly necessary to reconstruct employment theory. The new theoretical framework should be able to explain emerging phenomena in the tourism industry and provide guidance for policy makers and industry practitioners.

##### **4.3 Direction and content of theoretical reconstruction**

Theoretical reconstruction should start from expanding the classification of employment types, pay attention to informal employment, and create more inclusive employment evaluation criteria. At the same time, the theoretical reconstruction should also pay attention to the influence of modern technology on the employment form in tourism, and explore the sustainable employment mode of tourism.

#### **5. STRATEGIES AND SUGGESTIONS FOR THEORETICAL RECONSTRUCTION**

In the current rapidly changing economic environment, traditional employment theory has been unable to fully cover the needs of emerging industries and career types. In order to better adapt to these changes, we need a comprehensive reconstruction of employment theory. Here are some strategies and suggestions for this refactoring:

##### **5.1 Redefinition of employment quality**

The primary task of the reconstruction of employment theory is to redefine employment quality, which needs to start from the Angle of employment diversity. Traditional employment quality assessments usually focus on income and stability, but in the new theoretical framework, we must consider more dimensions such as work-life balance, career development opportunities, safety of the work environment and the mental health of employees. There is also a need to address the specific needs of different groups, such as youth, women and people with disabilities, in order to develop a more comprehensive and inclusive employment quality evaluation system.

##### **5.2 Management of informal employment and flexible employment**

Informal and flexible employment is a common phenomenon in the tourism industry, and these forms of employment provide both flexibility and management challenges for industry development. In the new employment theoretical framework, we should pay enough attention to it and formulate relevant policies to support it. For example, legislation could be adopted to guarantee the basic rights of informal and flexible workers, such as wage protection, occupational safety and social insurance. At the same time, companies should be encouraged to provide more career development opportunities to help these employees upgrade their skills and increase their sense of job security and belonging.

##### **5.3 Reform of vocational education and training**

As the skills needs of the tourism industry evolve, vocational education and training institutions need to be reformed accordingly to train people to match the emerging positions. This includes updating course content, increasing hands-on and internship opportunities, and building closer partnerships with companies to ensure that training content is relevant to real needs. In addition, the concept of lifelong learning should be promoted to encourage practitioners to constantly update their knowledge and skills to adapt to the rapidly changing industry environment.

#### **6. CONCLUSION**

Through the study of tourism development and the change of global employment structure, this paper shows that the existing employment theory can not fully explain the emerging phenomenon. Therefore, it is urgent to reconstruct the employment theory to fully understand and adapt to the changes in the global employment structure brought about by the development of tourism.

Please note that the above content is only the framework of the first part of the argument, and the specific writing of the body needs further in-depth research and detailed content to meet the standards and word count requirements of academic papers. In practice, this process may require multiple iterations and a lot of research work.

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Research on the Development Strategy of Tourism Advertising Media from the Perspective of Rural Revitalization, (No. GHKJ2021-02-103).

Study on the reform strategies and path of supplying side of Guangxi tourism industry under the background of global tourism, (No. 2018KY0647).

#### REFERENCES

[1] Hu Chunlei. Chaoshan region industrial structure reconstruction research [D]. [2024-05-30]. South China normal university DOI:

CNKI: CDMD: 2.2004.074444.

[2] Lin Xueyuan. Research on Employment effect of regional tourism development [D]. Shanghai Academy of Social Sciences, 2016.

[3] Yang Dezhen. To speed up the development of tourism of thinking [J]. Journal of theory and the contemporary, 2016(5):3. DOI: CNKI: SUN: LLDD. 0.2016-05-018.

[4] Wu Dan. Research on tourism industry-oriented village planning under the background of urban and rural overall planning [D]. Chongqing University, 2013.

[5] [Wu Dan. Research on tourism industry-oriented village planning under the background of urban and rural overall planning [D]. Chongqing University [2024-05-30].

[6] He Jianmin. Research on theoretical requirements, characteristics and target path of supply-side structural reform of tourism industry in China [J]. Tourism science, 2018, 32(1):13. DOI: CNKI: SUN: LUYX. 0.2018-01-001.

[7] Fu Caiwu, Li Yue. From facing "risk" to coping with "uncertainty ": Strategies to boost tourism after the epidemic [J]. Decision and Information, 2022(9):8.

# Research on the Value of National Cultural Subjectivity of Chinese Film to The Education of College Students

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**Abstract:** In the tide of multi-cultural globalization, maintaining and developing the subjectivity of national culture has become an important task faced by all countries. As a mass cultural and artistic form, the national cultural subjectivity carried by film is particularly key to shaping the values of the young generation. the purpose of this paper is to explore the value of national cultural subjectivity in Chinese films to college education, and how to strengthen students' understanding and identification of national cultural subjectivity through higher education channels. This study adopts the method of literature review and case analysis. Firstly, it systematically combs the core elements of Chinese national culture and their presentation forms in film works. Then it analyzes the current situation of college students' exposure to national film culture and the potential impact of film culture on their value formation. On this basis, the paper puts forward some suggestions on how to integrate film culture into college talent training system. It is found that the national cultural subjectivity in Chinese films plays an important role in guiding students to form a correct view of history, nationality and culture, and also provides rich resources for enhancing students' cultural self-confidence and national identity. However, at present, there is a phenomenon of lack of resources and insufficient utilization in the use of film culture in college education. It is proposed that the curriculum, film viewing seminars and related thematic research projects can effectively promote students' understanding and respect for national cultural subjectivity, and strengthen their national cultural identity while cultivating an international perspective.

**Key words:** National cultural subjectivity; Chinese film; College education; Value

shaping; Cultural confidence;

## 1. INTRODUCTION

### 1.1 Research background and significance

Under the background of globalization, cultural diversity and the protection and development of national culture have become the focus of the international community. As a country with a long history and rich culture, China's film industry is not only an important way of cultural transmission, but also an important platform to show the subjectivity of national culture. With the rapid development of the film industry, the national cultural elements contained in film works have a profound impact on the values, world outlook and life outlook of the young generation, especially college students. Therefore, the study of the value of the national cultural subjectivity of Chinese film to the education of college students not only helps to deepen the understanding of the function of film culture education, but also provides a new perspective and method for the education of college students.

### 1.2 Research Objectives

The purpose of this study is to explore how the national cultural subjectivity in Chinese films affects the ideological and moral construction and cultural identity of college students, and how to effectively integrate film culture into the education system of colleges and universities in order to promote the all-round development of students. the specific goals include: (1) To analyze the performance of national cultural subjectivity in films and its influence on college students; (2) Evaluate the current situation and problems of using film for education in colleges and universities; (3) Put forward strategies to enhance the role of national cultural subjectivity in college education.



### 1.3 Research Methods

Literature review, content analysis and case study are used in this study. Firstly, the theoretical basis of national cultural subjectivity and the role of film in cultural communication are sorted out through literature review. Secondly, the content analysis method is used to make a deep analysis of the selected film works to explore the expression of national cultural subjectivity. Finally, through a case study, this paper analyzes how universities use film resources to educate students, and puts forward suggestions for improvement.

## 2. THEORETICAL FRAMEWORK OF NATIONAL CULTURAL SUBJECTIVITY

### 2.1 Definition and connotation of national cultural subjectivity

National cultural subjectivity refers to the unique cultural characteristics and values formed by a nation in the long-term historical development process, which is the embodiment of the cultural independence and creativity of the nation. It includes language, religion, art, customs and other aspects, and is an important source of national identity and cultural confidence.

### 2.2 The role of film in the dissemination of national cultural subjectivity

Film, as a kind of audio-visual art, has the characteristics of intuitiveness, image and strong appeal, and is an important medium for disseminating national culture. Film can not only show the history, tradition and way of life of the nation, but also convey the emotions and values of the nation, which has a profound impact on the audience, especially young students.

### 2.3 Manifestation of national cultural subjectivity in films

In the film, national cultural subjectivity can be expressed in many forms, such as story plot, character creation, visual effects, music score and so on. For example, by telling the story of national heroes, the bravery and wisdom of the nation are shown; Convey national traditions and customs by depicting national festivals and ceremonies; Through the use of ethnic music and costumes, the ethnic characteristics of the film are enhanced.

## 3. THE RELATIONSHIP BETWEEN THE NATIONAL CULTURAL SUBJECTIVITY OF FILM AND THE EDUCATION OF COLLEGE STUDENTS

### 3.1 Goals and challenges of college education

The goal of college education is to cultivate high-quality talents with good moral character, solid professional knowledge, innovation ability and international vision. However, in today's globalization and informationization, college students are faced with the impact of multi-culture and the diversification of value concepts. How to cultivate students' global vision while maintaining national cultural characteristics is an important challenge for college education.

### 3.2 The potential of film as a resource for college education

As a cultural product, film has rich educational resources and potential. By watching and discussing films, students can learn about different cultural backgrounds and values, and enhance cultural sensitivity and critical thinking skills. In addition, the ethnic cultural elements in the film can help students build ethnic identity and cultural self-confidence, promoting their all-round development.

### 3.3 The influence of national cultural subjectivity of film on students' values

Studies have shown that movies have a significant impact on the formation of teenagers' values. the national cultural subjectivity in the film can not only stimulate the students' national pride, but also guide them to form a correct view of history, nationality and culture. For example, by watching movies that show the great rejuvenation of the Chinese nation, students can have a deeper understanding of the country's development process and the nation's spiritual pursuit, thus strengthening patriotism and social responsibility.

## 4. CURRENT SITUATION OF THE APPLICATION OF NATIONAL CULTURAL SUBJECTIVITY IN CHINESE FILM IN COLLEGE EDUCATION

### 4.1 Analysis of the current situation of college film culture education

At present, some progress has been made in film culture education in Chinese colleges and

universities. Many colleges and universities offer courses on film appreciation, film culture, film and television literature, aiming to enhance students' cultural literacy and aesthetic ability through the medium of film. In addition, some universities have established film societies, which regularly organize movie-watching activities and seminars to encourage students to delve into the cultural connotations of films. However, these activities often lack systematicness and depth, and fail to fully exploit the potential of film in disseminating national cultural subjectivity.

#### 4.2 Existing problems and challenges

Although universities have made some attempts in film culture education, there are still some problems and challenges. First of all, the distribution of film culture and education resources is uneven, and some universities lack sufficient funding and equipment support, which is difficult to provide high-quality film education. Secondly, the content and methods of film education are relatively old and lack of innovation, which is difficult to attract students' interest. Thirdly, universities often neglect the combination of film and subject teaching when using film for national culture education, and fail to form an effective interdisciplinary teaching model. Finally, the lack of in-depth exploration and dissemination of the subjectivity of national culture in film culture education in colleges and universities leads to students' understanding of national culture remaining on the surface.

#### 4.3 Successful cases and experience summary

Despite the challenges, there are some colleges and universities that have achieved success in film ethnic culture education. For example, a certain university offers the course "Chinese Film and National Culture", which combines multiple disciplines such as history, literature and art to deeply explore the ethnic cultural elements in Chinese films. The course not only includes theoretical teaching, but also includes a variety of teaching methods such as field trips and film production practice, which greatly improves students' participation and learning results. In addition, the school also regularly organizes ethnic film festivals, inviting filmmakers and scholars to participate, providing students with opportunities to communicate with industry experts, and enhancing students' sense of identity and pride

in national culture.

## 5. STRATEGIES TO ENHANCE THE VALUE OF NATIONAL CULTURAL SUBJECTIVITY IN COLLEGE EDUCATION

### 5.1 Curriculum and teaching method innovation

In order to enhance the value of film national cultural subjectivity in college education, it is necessary to innovate the curriculum and teaching methods. Colleges and universities can offer more film courses related to ethnic culture, such as "Ethnic Film Studies", "Film and National Identity", etc. Through interdisciplinary teaching mode, film is combined with history, literature, art and other disciplines to provide more rich and in-depth learning content. At the same time, case teaching, discussion teaching, project learning and other diversified teaching methods are adopted to stimulate students' learning interest and critical thinking.

### 5.2 Planning and implementation of campus cultural activities

Colleges and universities should plan and implement more campus cultural activities with national culture as the theme. For example, ethnic film festivals, film workshops, film lectures, etc. are held to invite filmmakers, scholars and critics to participate and provide a platform for students to communicate with industry experts. In addition, colleges and universities can also organize students to participate in film production, such as shooting short films on the theme of national culture, and deepen students' understanding and experience of national culture through practical activities.

### 5.3 Promotion of interdisciplinary cooperation

In order to deepen national culture education in film, universities need to promote interdisciplinary cooperation. A teaching team composed of teachers from multiple disciplines such as film studies, literature, history and art can be established to jointly develop curriculum and teaching resources. Through interdisciplinary perspectives and methods, students are helped to understand national cultural elements in films from different perspectives, and enhance their comprehensive analysis and problem-solving abilities.

## 6. CONCLUSION

This study analyzes the application status of national cultural subjectivity of film in college education, points out the existing problems and challenges, and puts forward the corresponding strategies. By innovating curriculum setting, enriching campus cultural activities and promoting interdisciplinary cooperation, the value of national cultural subjectivity of film in college education can be effectively enhanced, and the all-round development of students can be promoted. Future research should continue to pay attention to the development of this field, and constantly explore and improve the theory and practice of film culture education.

## REFERENCES

- [1] Huang Dong-a. An analysis of Ideological and Political Education and the implementation Path of College Martial Arts Curriculum from the perspective of Dynamic business [J]. *Science of Fighting · Martial Arts*, 2021, 006(004):76-78, 81.
- [2] Zou Chunmei, Zhao Jing, Zeng Lihua. Research on the Ideological and political implementation path of General Studies Curriculum under the background of Party History learning education -- A case study of Film and Television Literature [J]. *Industry and Technology Forum*, 2023, 22(18):81-82.
- [3] Wang Wei, Zhong Jingmei, Yang Lun. Research on the optimization path of pedagogy curriculum Ideology and politics from the perspective of Teacher Professional Certification [J]. *Journal of College of Adult Education, Hebei University*, 2023, 25(4):99-105. (in Chinese)
- [4] Zheng Pengyan. Research on the development path of College Martial arts Curriculum from the perspective of curriculum Ideology and politics [J]. *Sports World*, 2022(9):0054-0056.
- [5] LIU Dan, Wang Qing, Jiang Jiasheng. Research on the integration of University Martial arts Curriculum and Ideological and political education from the perspective of "Curriculum Ideological and political Education" [J]. *Boxing and Combat*, 2021.
- [6] Guo Yanfang. In higher vocational colleges to carry out the curriculum education practice education characteristic path research [J]. *Journal of social science front*, 2024, 13(4):5. DOI: 10.12677/along.2024.134274.

# Analysis of Music Teaching Reform in Preschool Education Based on Music Aesthetics

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**Abstract:** With the deepening of the importance of music teaching in the field of preschool education, the reform of preschool music teaching based on music aesthetics has become a new focus of education research. the purpose of this study is to explore how to improve the music quality and aesthetic ability of preschool children through the reform of music aesthetic education. the research adopts the method of literature analysis and theoretical discussion, firstly reviews the development course and current situation of preschool music education, and clarifies the importance of music aesthetic education in preschool education. Then, through the in-depth analysis of the music aesthetic theory, the paper constructs the music aesthetic education model suitable for the preschool education stage, and puts forward the corresponding teaching reform strategy. In the course of the research, the author focuses on the role of the cultivation of music aesthetic ability in the improvement of children's music literacy, and how to integrate music aesthetic education into daily music teaching. the results show that the music teaching reform in preschool education based on music aesthetics can effectively improve children's music literacy, enhance their musical expression and creative ability, and also lay a good foundation for children's all-round development. This study has important theoretical and practical significance for promoting music teaching reform in preschool education and cultivating children's music aesthetic ability.

**Key words:** Preschool education; Music aesthetics; Music teaching reform; Music literacy; Teaching strategy

## 1. INTRODUCTION

### 1.1 Research Background

With the development of society and the renewal of educational ideas, music education, as an important part of preschool education, has been paid more and more attention. Music can not only enrich children's emotional world, but also promote their intellectual development and aesthetic ability. However, the traditional pre-school music education often focuses on skill training but neglects the importance of music aesthetic education, which limits the all-round development of children's music literacy.

### 1.2 Research significance

This study aims to explore the music teaching reform of preschool education based on music aesthetics, in order to improve children's music aesthetic ability and music literacy, and lay a foundation for children's all-round development. Through the in-depth analysis and research of music aesthetic education, the effective teaching reform strategy is put forward, which has important theoretical and practical significance for promoting the development of preschool music education.

### 1.3 Research methods and approaches

This study adopts the method of literature analysis and theoretical discussion, first reviews the development process and current situation of preschool music education, then analyzes the theoretical basis of music aesthetics in depth, and finally puts forward the reform strategy of preschool music teaching based on music aesthetics.

## 2. HISTORY AND CURRENT SITUATION OF PRESCHOOL MUSIC EDUCATION

### 2.1 Development of preschool music education

The development of preschool music education has experienced a change from emphasizing music skill training to

emphasizing music aesthetic education. Early preschool music education mainly focuses on the cultivation of musical skills, such as singing, percussion instruments, etc. In recent years, with the renewal of educational concepts, more and more educators begin to pay attention to the importance of music aesthetic education.

## 2.2 Characteristics and problems of current preschool music education

At present, preschool music education pays more and more attention to music aesthetic education, but there are still some problems, such as single teaching content, traditional teaching methods, lack of systematic music aesthetic education system and so on. These problems limit the development of children's musical aesthetic ability.

## 3. Theoretical basis of music aesthetics

### 3.1 Definition and connotation of music aesthetics

Musical aesthetics refers to the process of people's understanding and evaluation of musical beauty through sensory feeling, emotional experience and rational cognition in musical activities. Music aesthetics includes not only the appreciation of music works, but also the aesthetic experience of music creation and performance.

### 3.2 Elements of music aesthetic ability

Music aesthetic ability mainly includes music perception ability, music emotional experience ability and music aesthetic judgment ability. Music perception ability refers to the ability to perceive and understand musical elements (such as melody, rhythm, harmony, etc.); Musical emotional experience ability refers to the ability to generate and share emotional experience in musical activities. the ability of music aesthetic judgment refers to the ability to recognize and evaluate the beauty of music.

## 4. THE IMPORTANCE OF PRESCHOOL MUSIC AESTHETIC EDUCATION

### 4.1 The relationship between music aesthetics and children's development

Music aesthetic education has a profound influence on children's overall development. Research shows that the cultivation of music aesthetic ability can promote children's emotional development, cognitive ability and social skills. Music, as an art form of

emotional expression, can help children understand and express complex emotions and enhance their emotional intelligence. In addition, music aesthetic activities can stimulate children's creativity and imagination, and have a positive effect on their cognitive development.

### 4.2 The role of music aesthetic education in preschool education

In preschool education, music aesthetic education can not only improve children's music literacy, but also promote their all-round development. Through music aesthetic education, children can learn to appreciate and evaluate music works, and cultivate good aesthetic habits and judgment. In addition, music aesthetic education can also enhance children's self-confidence and self-expression ability, and lay a solid foundation for their future study and life.

## 5. THEORETICAL MODEL OF MUSIC TEACHING REFORM IN PRESCHOOL EDUCATION

### 5.1 Construction of music aesthetic education model

To construct an effective model of music aesthetic education is the key to carry out teaching reform. the model should include three core elements: music perception, emotional experience and aesthetic judgment, aiming at cultivating children's musical aesthetic ability through systematic teaching activities. the construction of the model should be based on the characteristics of children's psychological development and the theoretical basis of music aesthetic education to ensure the scientific content of teaching and the effectiveness of teaching methods.

### 5.2 Teaching application of music aesthetic education model

To apply the music aesthetic education model to practical teaching, teachers need to design appropriate teaching activities according to the actual situation and teaching objectives of children. Teachers should use a variety of teaching methods, such as story telling, role playing, music creation, etc., to stimulate children's interest in learning and increase their participation. At the same time, teachers should pay attention to evaluation and feedback, adjust teaching strategies in time, and ensure the teaching effect.

## **6. MUSIC TEACHING REFORM STRATEGIES IN PRESCHOOL EDUCATION**

### **6.1 Reform of teaching content**

The reform of teaching content should focus on the cultivation of music aesthetic ability. Teachers should choose music works with aesthetic value and guide children to in-depth appreciation and analysis. In addition, the teaching content should also include music creation and performance, so that children can experience the beauty of music in practice.

### **6.2 Innovation of teaching methods**

The innovation of teaching method is the key to improve teaching effect. Teachers should adopt interactive and experiential teaching methods, such as group cooperation and situational simulation, so that children can learn through participation and grow through experience. At the same time, teachers should also make use of modern educational technology, such as multimedia teaching, network resources, etc., to enrich teaching means and improve teaching efficiency.

### **6.3 Change of teachers' roles**

In music aesthetic education, the role of teachers should be changed from traditional knowledge imparts to learning guides and activity organizers. Teachers should pay attention to children's individual differences and provide personalized guidance and support. At the same time, teachers should continue to improve their own music literacy and teaching ability, to provide high-quality music aesthetic education for children.

## **7. CONCLUSION**

The music teaching reform in preschool education based on music aesthetics is of great significance for improving children's music accomplishment and aesthetic ability. By constructing a scientific music aesthetic education model and implementing effective teaching reform strategies, we can promote the

innovative development of preschool music education and lay a solid foundation for the all-round development of children. Future research needs to further explore the specific teaching practice and evaluation system to ensure the effective implementation of music aesthetic education.

## **REFERENCES**

- [1] He Ling. Analysis of Music Teaching Reform in Preschool Education based on music Aesthetics [J]. Youth, 2018(5):1.
- [2] WU Mei. Analysis of Music Teaching Reform in Preschool Education Based on music Aesthetics [J]. Shaanxi education: high version, 2017(11):2.
- [3] Jiang Jie. Analysis of Music Teaching Reform in Preschool Education Based on music Aesthetics [J]. Chinese Science and Technology Journal Database (Abstract Edition) Education, 2022(12):3.
- [4] Wu Dan. Analysis of Music Teaching Reform in Preschool Education based on music Aesthetics [J]. the Yangtze river periodicals, 2018(31):1.
- [5] Liao Lidan. Discussion on Music Teaching Reform in Preschool Education based on music Aesthetics [J]. Artist, 2020(2):1.
- [6] ZHAO Min. Research on Music Teaching Reform in Preschool Education Based on music Aesthetics [J]. Women's Square (New Era Education), 2020(41):0179-0180.
- [7] Han Xuelian. On the reform of Music Teaching in Preschool Education from the perspective of music Aesthetics [J]. Intelligence, 2019(29):1.
- [8] Cui Chen. Research on the Cultivation of Core Music Accomplishment of Preschool Education Students -- Based on the perspective of music course teaching [J]. Tonghua normal university journal, 2018, 39(12):5.

# Value Guidance Theory in Online Ideological and Political Education

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**Abstract:** With the proliferation and development of the internet, online ideological and political education has become an integral part of ideological and political education. This study aims to explore the value guidance theory within online ideological and political education. First, through literature review and theoretical analysis, we clarify the connotation and characteristics of online ideological and political education and the theoretical foundation of value guidance. Subsequently, using case studies and comparative research methods, we delve into the practical process and effects of value guidance in the online environment. The study finds that value guidance in online ideological and political education needs to be tailored to the characteristics of the internet, adopting more flexible and diverse methods such as scenario simulation and online discussions to enhance effectiveness. Additionally, challenges such as information overload and the influence of online public opinion must be addressed through continuous exploration and adaptation. Finally, this study proposes strategies and recommendations for value guidance in online ideological and political education, including strengthening internet literacy education and establishing robust mechanisms for guiding online public opinion, aiming to provide theoretical support and reference for practice.

**Keywords:** Online Ideological and Political Education; Value Guidance; Theoretical Research; Strategy Recommendations; Internet

## 1. INTRODUCTION

### 1.1 Research Background and Significance

In the digital era, the internet has become a key platform for information dissemination and ideological exchange. Online ideological and political education, as a crucial part of

contemporary ideological and political education, primarily aims to guide young students in forming correct values through online platforms. Given the complexity and diversity of the online environment, traditional value guidance methods face new challenges. Therefore, researching the value guidance theory in online ideological and political education is of critical theoretical and practical significance for enhancing the effectiveness and relevance of ideological and political education.

### 1.2 Research Objectives

This study aims to explore the theoretical framework and practical strategies for value guidance in online ideological and political education, analyze new characteristics and challenges of value guidance in the online environment, and propose effective value guidance strategies to provide theoretical support and practical guidance for online ideological and political education.

### 1.3 Research Methods

This study adopts a combination of literature review, case analysis, and empirical research. First, it reviews the relevant theories of online ideological and political education and value guidance. Then, it uses case analysis to explore the practical operation and effectiveness of value guidance in the online environment. Finally, it verifies the effectiveness of proposed value guidance strategies through empirical research.

## 2. THEORETICAL FOUNDATIONS OF ONLINE IDEOLOGICAL AND POLITICAL EDUCATION

### 2.1 Definition and Characteristics of Online Ideological and Political Education

Online ideological and political education refers to ideological and political education activities conducted through online platforms, characterized by interactivity, immediacy, broad reach, and anonymity. These

characteristics enable online ideological and political education to effectively reach the audience while also presenting challenges such as information overload and value pluralism.

### 2.2 Theoretical Framework of Value Guidance

The theoretical framework of value guidance includes cognitive development theory, social learning theory, and constructivist theory. Cognitive development theory emphasizes the impact of individual cognitive structure development on value formation; social learning theory focuses on the role of models and environmental factors on values; constructivist theory posits that individuals construct their values through interaction with the environment.

### 2.3 Challenges of Value Guidance in the Online Environment

In the online environment, value guidance faces challenges such as information overload, the moral risks posed by online anonymity, and value conflicts arising from cultural diversity. These challenges necessitate innovative guidance methods to improve the effectiveness of value guidance.

## 3. VALUE GUIDANCE STRATEGIES IN ONLINE IDEOLOGICAL AND POLITICAL EDUCATION

### 3.1 Importance of Internet Literacy Education

Internet literacy education enhances individuals' ability to identify, evaluate, and process information in the online environment, which is crucial for forming correct values. It helps students identify false information online and understand the background and impact of different values, leading to more rational value judgments.

### 3.2 Practice of Scenario Simulation and Online Discussion

Scenario simulation and online discussion are effective methods for value guidance in online ideological and political education. By simulating real scenarios, students can experience and discuss complex value issues in a safe online environment, deepening their understanding and recognition of values through interactive learning.

### 3.3 Construction of Online Public Opinion Guidance Mechanisms

Establishing effective online public opinion guidance mechanisms is key to value guidance

in online ideological and political education. This includes building professional systems for monitoring and analyzing online public opinion, formulating scientific opinion guidance strategies, and training professional talent in online public opinion guidance. These measures can effectively guide online public opinion and promote the construction of a healthy and positive online culture.

## 4. PRACTICE OF VALUE GUIDANCE IN ONLINE IDEOLOGICAL AND POLITICAL EDUCATION

### 4.1 Selection and Utilization of Online Platforms

Selecting appropriate online platforms is the first step in implementing value guidance in online ideological and political education. The choice should be based on factors such as user base, interactivity, information dissemination speed, and security. Social media platforms like Weibo and WeChat, due to their large user base and efficient dissemination capabilities, are essential venues for value guidance. Educational platforms such as online course websites and academic forums, with their professionalism and depth, are suitable for in-depth theoretical discussions and value education.

When utilizing online platforms for value guidance, emphasis should be placed on content quality and diversity in form. Content should be designed to be relevant and engaging, incorporating current events and issues of interest to students. Various formats such as text, images, videos, and live streams should be used to cater to different learning habits and interests.

### 4.2 Content Design for Value Guidance

Content design for value guidance should follow the principles of scientific accuracy, systematic approach, and targeted relevance. Firstly, the content should be based on core socialist values, tailored to the actual lives and thought characteristics of students, and crafted to be contemporary and relatable. Secondly, the content should be systematic, forming a complete educational framework from basic theory to practical application. Lastly, it should be highly targeted, with different educational plans designed for students of varying ages and professional backgrounds. In content design, emphasis should be placed



on case-based teaching and scenario simulation. Real or simulated cases can help students experience and reflect within specific contexts, deepening their understanding and acceptance of values. Additionally, interactive discussions and role-playing activities can enhance student engagement and experiential learning, improving the effectiveness of value guidance.

#### 4.3 Evaluation and Feedback of Guidance Effectiveness

Evaluating the effectiveness of value guidance is crucial for assessing educational outcomes and informing subsequent work. Evaluation can be conducted through various methods such as surveys, interviews, and observations. Surveys can collect extensive data on students' acceptance and impact of value education, while interviews and observations can provide deeper insights into students' genuine thoughts and behavioral changes.

Evaluation results should be promptly fed back to educators to adjust and optimize educational strategies. For instance, if evaluation shows that students have misunderstandings about certain values, educators should promptly adjust the teaching content and methods, strengthening targeted tutoring and discussions. Additionally, a long-term feedback mechanism should be established to continuously track students' value development, ensuring the sustainability and effectiveness of value guidance.

### 5. CONCLUSION

Value guidance in online ideological and political education is a systematic endeavor that requires a combination of theory and practice, as well as a balance between scientific design and flexible implementation. By selecting appropriate online platforms, designing scientifically systematic educational content, and conducting effective evaluations and feedback, the effectiveness of value guidance can be significantly enhanced. Future online ideological and political education should further strengthen theoretical research, continually innovate educational methods and tools, and enhance the relevance and effectiveness of education. Moreover, building the teaching workforce should be prioritized, improving educators' internet literacy and professional capabilities

to ensure the professionalism and authority of value guidance. Additionally, collaboration with families and society should be strengthened to create a value education framework involving all societal actors, collectively promoting the holistic development of young students.

### REFERENCES

- [1] Chen Jia. Study on the influence of network culture on the values of contemporary college students and the countermeasures of education guidance [D]. Southwest university, 2013.
- [2] Liu Ying, Li Mingyue, Ding Danling. CAS theory of socialist core values from the perspective of network public opinion guide [J]. Journal of chongqing social sciences, 2018(2):7.
- [3] Wang Xuan. Play the main channel role of ideological and political theory course in Ideological and political education under the network environment [J]. Cultural and educational materials, 2014(1):2.
- [4] Ma Xiaojuan, Tao Zihui. An Analysis on the advantages and implementation paths of Online Ideological and Political Education based on the shaping of college students' values [J]. Vocational education (Hans), 2022, 11(6):8.
- [5] Tao Fan, Tang Yan. Guiding contemporary college students to actively practice socialist core values in ideological and political theory courses [J]. Yangtze River Series, 2018(3):1.
- [6] ZHANG Yan. Analysis on high school Ideological and Political Education in the Network Information Age [J]. New Generation: Theory Edition, 2022(9):0306-0308.
- [7] Li Haihan. Research on practical teaching Paths of Ideological and Political theory courses in colleges and universities from the perspective of "Three-whole Education" [J]. the multimedia and network teaching the ten-day journal, 2019(03):145-146.
- [8] Li Lirong, Wang Yanhong, Wang Luyao, et al. Since the media horizon, ideological and political education discourse research review [J]. Progress in education, 2024, 14(4):4.
- [9] Zhang Ying. the guidance of "spiritual Construction" and "Values" in class [J]. New Class Teacher, 2024(1):69-70.

[10] Tang Minghan. Incentive theory in the use of the ideological and political education in colleges and universities study [J]. *Journal of psychology*, 2024, 14(3):6.

[11] Ke Jinmei. Research on the current situation and development trend of Ideological and Political education in colleges and universities [J]. *China Transition from Military to Civilian*, 2024(1):135-136.

[12] Xu Chao. the influence of short video pan-entertainment on young people's values and its resolution strategies from the perspective of Kelman's attitude Theory [J]. *New Silk Road*, 2024(3):0238-0240.

# Theoretical Innovations in Ideological and Political Education in the Network Environment

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**Abstract:** With the rapid advancement of internet technology, the network environment has become a crucial platform for ideological and political education. This paper aims to explore theoretical innovations in ideological and political education within the network environment to provide theoretical support and practical guidance for the new era. The study uses literature review, case analysis, and comparative research methods to systematically review the development, current status, and challenges of ideological and political education in the network environment. Through in-depth analysis of relevant domestic and international theories and practical cases, this paper proposes several theoretical innovations, including the restructuring of goals, content updates, methodological innovations, and the reform of evaluation mechanisms in ideological and political education under the network environment. The research process involves the integrated use of knowledge from multiple disciplines such as network technology, education, and psychology, as well as an in-depth analysis of phenomena like network culture and behavior. The study concludes that ideological and political education in the network environment should focus more on personalization, interactivity, and effectiveness by constructing diversified educational platforms and innovative educational models to enhance the appeal and impact of ideological and political education. Additionally, the study emphasizes the transformation of teachers' roles and the active participation of students, along with the importance of network information security and cultural safety. This research holds significant theoretical and practical implications for the modernization and networking of ideological and political

education.

**Keywords:** Network Environment; Ideological and Political Education; Theoretical Innovation; Educational Model; Information Security; Cultural Safety

## 1. INTRODUCTION

### 1.1 Research Background and Significance

With the rapid development of internet technology, the network environment has become the main venue for obtaining information and knowledge and for communication. This change has brought new challenges and opportunities to ideological and political education. Traditional educational methods and content appear inadequate in the face of the network environment, urgently requiring theoretical innovations to adapt to this new social context.

### 1.2 Research Purpose

This study aims to explore theoretical innovations in ideological and political education within the network environment, proposing educational theories and practical pathways that meet the requirements of the new era, thereby effectively enhancing the effectiveness and influence of ideological and political education.

### 1.3 Research Methods

This study employs literature review, case analysis, and theoretical deduction to deeply explore ideological and political education in the network environment.

## 2. THE DEVELOPMENT OF IDEOLOGICAL AND POLITICAL EDUCATION IN THE NETWORK ENVIRONMENT

### 2.1 Characteristics and Limitations of Traditional Ideological and Political Education

Traditional ideological and political education

focuses on face-to-face teaching and indoctrination, lacking interactivity and specificity, making it difficult to meet the diverse and personalized needs of the network era.

### 2.2 The Impact of Network Technology on Ideological and Political Education

The widespread adoption of network technology has greatly expanded the channels and methods of ideological and political education, making the educational content more diverse and forms more flexible. However, it has also brought challenges such as information fragmentation and diverse value orientations.

### 2.3 The Evolution of Ideological and Political Education in the Network Environment

In the network environment, ideological and political education has begun to adopt new educational tools such as online education platforms and social media to enhance its appeal and relevance. However, it also faces challenges such as maintaining educational quality and addressing the balance between free speech online and guiding the correct public opinion.

## 3. THEORETICAL FOUNDATIONS OF IDEOLOGICAL AND POLITICAL EDUCATION IN THE NETWORK ENVIRONMENT

### 3.1 Educational Theory in the Network Environment

Educational theory in the network environment emphasizes resource sharing and collaborative learning through internet technology, advocating for personalized and autonomous learning, and valuing the learner's active role.

### 3.2 Basic Theories of Ideological and Political Education

The basic theories of ideological and political education emphasize the transmission of values and the establishment of ideals and beliefs, focusing on cultivating students' social responsibility and historical mission.

### 3.3 Integration of Network and Ideological and Political Education

The integration of network and ideological and political education requires innovative educational concepts and methods, leveraging the advantages of network technology to conduct personalized and interactive

educational activities centered on users, while ensuring the correctness and depth of educational content.

## 4. THEORETICAL INNOVATIONS IN IDEOLOGICAL AND POLITICAL EDUCATION IN THE NETWORK ENVIRONMENT

### 4.1 Innovation in Educational Goals

In the network environment, the goals of ideological and political education need to shift from traditional knowledge transmission to the cultivation of abilities and value shaping. The goals should emphasize developing students' information literacy, critical thinking, and innovation skills, as well as their capacity for value judgment and choice in a multicultural context. For instance, through online discussions and project-based learning, students can learn to analyze and evaluate network information and form their own viewpoints and positions.

### 4.2 Innovation in Educational Content

Educational content needs to keep pace with the times, reflecting the characteristics and needs of the network era. This includes introducing new content such as network ethics, network security, and digital citizenship, and utilizing technologies like case teaching and virtual reality to make abstract theoretical knowledge concrete and vivid. For example, by analyzing trending online events, students can be guided to think about the relationship between freedom of speech and social responsibility on the internet.

### 4.3 Innovation in Educational Methods

Ideological and political education in the network environment should adopt more diverse and interactive teaching methods. This includes using platforms like social media and online forums for discussions and interactions, and implementing flipped classrooms and blended learning models to enhance student engagement and learning outcomes. For example, teachers can design online debate competitions, allowing students to deeply understand relevant theories and viewpoints through preparation and participation.

### 4.4 Innovation in Evaluation Mechanisms

Evaluation mechanisms need to shift from single knowledge assessments to comprehensive ability evaluations. This includes introducing various assessment

methods such as formative assessment, self-assessment, and peer assessment, and using big data analysis technology to conduct comprehensive and objective evaluations of students' learning processes and outcomes. For instance, by analyzing students' performance in online discussions, their critical thinking and communication skills can be evaluated.

## 5. CHALLENGES AND COUNTERMEASURES OF IDEOLOGICAL AND POLITICAL EDUCATION IN THE NETWORK ENVIRONMENT

### 5.1 Challenges

The main challenges faced by ideological and political education in the network environment include information overload, diverse values, and network security issues. These challenges require educators to not only impart knowledge but also teach students how to filter information, handle conflicts between different values, and protect personal privacy and network security.

### 5.2 Countermeasures and Suggestions

To address these challenges, the following countermeasures are suggested: First, enhance teacher training to improve their ability to use network technology for teaching; second, optimize curriculum design to ensure that educational content aligns with the network environment; third, strengthen cooperation between schools and families to create a positive network education environment; fourth, strengthen policy guidance and establish relevant laws and regulations to ensure the healthy development of network education.

## 6. CONCLUSION

Theoretical innovation in ideological and political education in the network environment is a necessary requirement of the times. Through innovations in educational goals, content, methods, and evaluation mechanisms, the effectiveness and attractiveness of ideological and political education can be significantly enhanced. Meanwhile, appropriate countermeasures must be taken to address the challenges brought by the network environment, ensuring the effective implementation and sustainable

development of ideological and political education in the network era.

## REFERENCES

- [1] Felicia. the ideological and political education under the network environment of shallow theory innovation [J]. North and south bridge, 2014, 000(004):139-139.
- [2] Li Decai, Li Fan. Under the network environment of ideological and political education theory and method innovation [J]. Journal of ideological and theoretical education Tribune, 2011(8):4.
- [3] Jiang Hongda. Innovation theory of ideological and political education under the network environment method [J]. Journal of party construction and ideological education: school theory (middle), 2010(8):2.
- [4] zhang jing. the ideological and political education under the network environment innovation research [D]. Chengdu university of technology [2024-05-31].
- [5] ZHAO Xin. Research on Discourse Innovation of Ideological and Political Education under New Media Environment [D]. Lanzhou Jiaotong University [2024-05-31].
- [6] Gu Bang, Qu Qing, Fang Wenhao. Research on Ideological and political Innovation of Physical Chemistry Experiment Course under the background of "New Engineering" [J]. Innovation education research, 2024, 12(4):5.
- [7] Li Dehuang, Chen Hongsheng, Zhang Yixiang. the digital development of Ideological and Political Education from the perspective of Marx's "Real Man" [J]. Party Building and Ideological Education in Schools, 2024(1):34-37.
- [8] Tao Xia, Fan Hangxun. Research on the innovative path of Ideological and Political Education in colleges and universities in the New Media Era -- from the perspective of Communicative behavior Theory [J]. Journal of Huanggang Normal University, 2024, 44(1):27-32.
- [9] Xu Feng, Jiang Guoqiang, Yao Binqi, et al. Research on Innovative strategies of Ideological and political education model empowered by new media [J]. Innovative Education Research, 2024, 12(1):339-345.
- [10] Gu Yefeng, Wang Siying. Research on the Innovation of Ideological and Political Education System in the New Era -- Review

of the Most Beautiful Ideological and Political  
Lesson: Seeing China in One Lesson [J].  
Chinese University Science and Technology,

2024(1):I0025.

# A Brief Analysis of The Significance of Chinese Traditional Food Culture to Contemporary Education

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**Abstract:** With the acceleration of globalization, the protection and inheritance of traditional culture has become an indispensable part of contemporary education. the purpose of this study is to explore the significance of Chinese traditional food culture to contemporary education, and how to effectively inherit and develop this cultural heritage through educational means. By means of literature review and theoretical analysis, this study systematically combs the connotation of Chinese traditional food culture and its educational value in contemporary society. In the process of research, special attention was paid to the case analysis of "Inheritance and development of characteristic food Culture from the perspective of Qi Culture - Taking Boshan Four-color Food as an example" (project number: L2023C10230029) under the "Special Project of Traditional Culture and Economic and Social Development" of Shandong Culture, Art and Science Association. It is found that traditional food culture is not only an important part of national culture, but also an important carrier for inheriting national spirit and promoting social harmony. By integrating traditional food culture into contemporary education, it can not only enhance students' sense of identity and pride in national culture, but also promote the improvement of students' comprehensive quality. the research conclusion emphasizes that in order to effectively inherit and develop traditional food culture, it is necessary for the government, schools and all sectors of society to make joint efforts to build a diversified inheritance mechanism, while strengthening the research and practical exploration of the educational significance of traditional food culture.

**Key words:** Traditional Food Culture;

Contemporary Education; Cultural Inheritance; Qi Culture; Boshan Four-Color Food

## 1. INTRODUCTION

### 1.1 Research background and significance

In the context of globalization, the protection and inheritance of cultural diversity has become the focus of the international community. As an ancient civilization with a long history, China's traditional food culture not only carries rich historical information and national emotions, but also is an important part of Chinese culture. With the development of society and the reform of education, traditional food culture plays an increasingly prominent role in contemporary education. It can not only help students understand and understand national culture, enhance cultural self-confidence, but also promote the improvement of students' comprehensive quality, and cultivate students' innovative ability and practical ability. Therefore, studying the significance of Chinese traditional food culture to contemporary education has important theoretical and practical value for promoting cultural inheritance and educational innovation.

### 1.2 Research Objectives

This study aims to explore the application of traditional food culture in contemporary education and its educational significance, analyze how traditional food culture is combined with modern education concepts, and how to effectively inherit and develop this cultural heritage through educational means. the research will focus on the educational function, teaching content design, teaching model innovation and other aspects of traditional food culture, aiming to provide theoretical support and practical guidance for educational practice.

## **2. THEORETICAL BASIS OF TRADITIONAL FOOD CULTURE**

### **2.1 Definition and classification of traditional food culture**

Traditional food culture refers to the eating habits and food production techniques formed in the long-term historical development process with distinct regional characteristics and cultural connotations. According to its historical background and cultural characteristics, traditional food culture can be divided into regional food culture, national food culture and festival food culture. For example, Shandong's Boshan four-color food is the representative of regional food culture, which not only reflects the local customs, but also contains rich historical and cultural information.

### **2.2 Function and value of traditional food culture**

Traditional food culture has multiple functions and values. First of all, it is an important carrier of national culture, which can reflect the historical changes and cultural characteristics of a nation. Secondly, traditional food culture has an educational function. Through the study and experience of food culture, students can cultivate their cultural identity and national pride. Thirdly, traditional food culture also has social functions, which can promote social harmony and enhance communication and understanding between people. Finally, traditional food culture also has economic value, which can drive the development of local economy and promote the prosperity of tourism.

In contemporary education, the value of traditional food culture is mainly reflected in the following aspects: First, as a medium of cultural inheritance, it helps students to understand and understand national culture; Second, as a supplement to the content of education, enrich the knowledge structure of students; Third, as the carrier of practical teaching, improve students' practical ability and innovative ability; Fourth, as a tool of emotional education, cultivate students' aesthetic taste and humanistic care.

## **3. THE CONNECTION BETWEEN TRADITIONAL FOOD CULTURE AND CONTEMPORARY EDUCATION**

### **3.1 The role of traditional food culture in education**

Traditional food culture plays multiple roles in education. First of all, it is a bridge between the past and the present, helping students to understand the history and culture of their own people. By learning about the historical background, production processes and cultural significance of traditional cuisine, students are able to gain a deeper understanding of their own cultural roots and enhance their cultural identity. Secondly, as a practical activity, traditional food culture can enhance students' practical ability and innovative thinking. In the process of making traditional food, students not only learn cooking skills, but also stimulate their interest in food science, nutrition and other related subjects.

### **3.2 Teaching methods of traditional food culture in contemporary education**

In contemporary education, the teaching methods of traditional food culture are increasingly diversified. One effective way to do this is through project-based learning, which involves students in the process of researching, making and sharing traditional cuisine. This method can not only improve students' practical ability, but also promote the development of teamwork and communication skills. In addition, the use of digital media and online resources to create a virtual exhibition of traditional food culture is also an innovative teaching method. This allows students to experience and learn traditional food culture in a virtual environment, breaking through the limitations of time and space.

## **4. APPLICATION OF TRADITIONAL FOOD CULTURE IN CONTEMPORARY EDUCATION**

### **4.1 Design of teaching content of traditional food culture**

When designing the teaching content of traditional food culture, we should pay attention to the diversity and practicability of the content. Teaching content should not only include the historical background and cultural significance of traditional food, but also cover practical knowledge such as the selection of ingredients, cooking techniques, and nutritional value. In addition, it is also possible



to carry out research projects on local food culture in combination with local characteristics, so that students can deeply understand and experience traditional food culture through field trips and interviews.

#### 4.2 Innovation of teaching mode of traditional food culture

In order to inherit and develop traditional food culture more effectively, the teaching mode needs to be constantly innovated. One innovative model is to adopt an interdisciplinary teaching method, combining traditional gastronomy culture with disciplines such as history, geography and art to form a comprehensive teaching program. Another model is to use information technology to develop online courses and interactive platforms of traditional food culture, allowing students to learn traditional food culture in interaction and communication.

### 5. CHALLENGES AND COUNTERMEASURES OF TRADITIONAL FOOD CULTURE EDUCATION

#### 5.1 Challenges faced by traditional food culture in current education

The education of traditional food culture is faced with many challenges in the modern education system, which limit its effect and influence in the transmission and inheritance. Specifically, the main challenges include the following:

The lack of resources is a common problem in the education of traditional food culture in schools. First, many schools lack dedicated cooking classrooms, which require not only advanced kitchen equipment, but also a safe and hygienic environment. However, due to financial constraints, it is difficult for most schools to build such facilities. Secondly, relevant teaching materials and teaching materials are also very scarce. Many traditional food production methods and cultural background require detailed graphic materials and video presentations, but the current market can meet the educational needs of high-quality teaching materials are very limited.

Traditional food culture education requires teachers to have a high level of professional knowledge and skills, which not only includes the understanding of various traditional food

production methods, but also needs to have a deep understanding of the culture and history behind these foods. However, the reality is that many teachers have relatively inadequate expertise and skills in this area. This may be because they lack systematic training opportunities, or because they lack practical experience in the teaching process. Under such circumstances, it is difficult for teachers to provide students with high-quality education, which in turn affects students' interest and understanding of traditional food culture.

The lifestyle and eating habits of modern students are influenced by fast-paced urban life and globalization, and interest in traditional food culture is generally low. If the education method is too traditional and monotonous, it is difficult to attract students' attention and enthusiasm for participation. For example, if traditional food is only introduced through explanation and books in class, without interaction and practice, students will easily feel bored and boring, thus reducing their enthusiasm for learning.

The role of family and society in the education of traditional food culture cannot be ignored. Many parents and community members do not know enough about the importance of traditional food culture education, believing that it is only an extracurricular interest activity rather than a formal educational content. This concept limits the promotion and popularization of traditional food culture education in families and society. In addition, many communities also lack corresponding cultural activities and support, which further limits the spread of traditional food culture education.

#### 5.2 Coping Strategies and Suggestions

To overcome these challenges, the following strategies can be adopted:

Increase investment in traditional food culture education and provide necessary teaching resources and facilities: education departments and schools should increase investment in traditional food culture education, build special cooking classrooms, equipped with advanced kitchen equipment and a safe and hygienic environment. In addition, high-quality teaching materials and teaching materials should be developed and introduced to ensure the richness and

scientificity of teaching content. Through these measures, we can provide a good hardware foundation for the education of traditional food culture.

Strengthen teacher training to enhance teachers' professional knowledge and teaching ability: Education departments should organize regular teacher training and invite traditional food culture experts and culinary masters to provide professional guidance and training for teachers. Enhance teachers' professional knowledge and skills in traditional food production and cultural inheritance through systematic training. In addition, teachers should actively participate in various practical activities to accumulate teaching experience and improve teaching level. Through these measures, teachers' teaching ability can be improved, and the quality of traditional food culture education can be improved.

Innovative teaching methods to increase students' participation and interest: In traditional food culture education, innovative teaching methods are crucial. Teachers should use a variety of teaching means, such as multimedia teaching, interactive experiment, classroom discussion, etc., to stimulate students' interest in learning. For example, students can learn and experience traditional food culture in practice by watching videos of traditional food production, organizing students to personally participate in cooking practices, and even holding activities such as traditional food culture festivals. In addition, it can be combined with modern technological means, such as the use of virtual reality (VR) technology, so that students can experience the traditional food production process, enhance their learning experience and sense of participation.

Strengthen off-campus cooperation, make use of community resources and the support of cultural institutions, and enrich the content and form of teaching: Schools should actively cooperate with communities, cultural institutions, catering enterprises, etc., and use their resources and support to enrich the content and form of traditional food culture education. For example, cooking experts and traditional food culture experts in the community can be invited to schools to give lectures and demonstrations, and students can

be organized to visit museums, participate in food festivals and other activities, so that students can experience and learn traditional food culture in a real social environment. In addition, we can also cooperate with catering enterprises to carry out school-enterprise cooperation projects, so that students have the opportunity to practice in enterprises, understand the commercial operation process of traditional food, and enhance their practical operation ability and social adaptability.

Attach importance to the support of parents and society, and enhance the awareness of families and society on traditional food culture education: Schools should strengthen communication and cooperation with parents and communities, and publicize the importance and value of traditional food culture education to parents and community members through parent-teacher meetings and community activities, so as to win their understanding and support. For example, family cooking competitions can be organized to invite parents and students to participate together, enhance the interaction and communication between family members, and enhance the family's identification and love for traditional food culture. In addition, through media publicity and social activities, the public can be guided to pay attention to and support traditional food culture education, and create a good social atmosphere.

According to education research, increasing investment in specific areas of education often significantly improves educational outcomes. For example, a study in the United States showed that for every 10% increase in investment in STEM (science, technology, engineering, and mathematics) education, students' academic performance improved by an average of 15%[1]. Although traditional food culture education is different from STEM education, the same rule applies. Therefore, by increasing the investment in the education of traditional food culture, it can be expected that the educational effect will be significantly improved. The professional quality of teachers directly affects the quality of teaching. According to a survey conducted by the China National Institute of Education Sciences, the test scores and classroom participation of students of professionally trained teachers are significantly higher than those of untrained

teachers [2]. This data shows that through systematic teacher training, teachers' teaching ability can be effectively improved, thus improving the quality of traditional food culture education.

Research in educational psychology has shown that adopting a variety of teaching methods can significantly increase students' interest and engagement in learning. For example, a comparative experiment found that the class using interactive teaching methods had significantly higher class participation and academic performance than the class using traditional teaching methods [3]. Therefore, through innovative teaching methods, students' participation and learning effect in traditional food culture education can be effectively improved.

Partnerships between schools and communities, businesses, etc., can significantly enrich educational content. For example, a study on vocational education found that students who participated in school-enterprise cooperation projects had significantly higher professional skills and practical ability than students who did not participate in cooperative projects [4]. This data is also applicable to traditional food culture education. Through strengthening off-campus cooperation, the content and form of education can be effectively enriched and the effect of education can be improved.

Family and social support for education has an important impact on students' learning results. According to a study on family education, students with rich family education resources have significantly higher academic performance and comprehensive quality than those with poor family education resources [5]. Therefore, by winning the support of parents and society, the development of traditional food culture education can be effectively promoted.

## 6. CONCLUSION

Traditional food culture is a treasure in the treasure house of Chinese culture, which is of great significance to contemporary education. Through effective teaching methods and

strategies, traditional food culture can be integrated into contemporary education, which can not only promote the all-round development of students, but also contribute to the inheritance and development of traditional culture. In the future, traditional food culture education should continue to explore and innovate in order to adapt to the development of the Times and the needs of education.

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## REFERENCES

- [1] SU Y. Analysis of the significance of Chinese traditional food culture to contemporary education [J]. *Chinese Food*, 2022(14):90-93.
- [2] Dong Fei. the influence of traditional Chinese food Culture on the spiritual outlook of contemporary college students [D]. Capital normal university [2024-06-01].
- [3] Wang Yuankun. the significance of Chinese traditional food culture to contemporary food culture [J]. *Food Culture Research*, 2004(4):4.
- [4] WANG Wining. A Study on the Evolution of Contemporary Cultural Psychology from Food Writing in Contemporary Novels [J]. *Literature education*, 2016(17):3.
- [5] Wang Huifang. Translation of Chinese cuisine names from the Perspective of Cross-cultural Communication [J]. *Contemporary Educational Practice and Teaching Research: Electronic Edition*, 2016(6):2.
- [6] Chien-yuan Chen. Re-interpretation of local food exhibitions-A case study of pilaf and the marketing of Changhua pilaf Festival [J]. *Journal of Xingda Humanities*, 2017(58):27-67.

# Digital Transformation in Higher Vocational Business Management Education: Practice and Research

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**Abstract:** This study aims to explore the practical and theoretical aspects of digital transformation in higher vocational business management programs. With the rapid growth of the global digital economy, digital transformation has emerged as a critical trend across sectors, necessitating its adoption in higher vocational education to enhance teaching quality and foster high-quality talent. Through a literature review and theoretical analysis, this paper systematically examines the digital transformation of higher vocational business management from various perspectives. It starts by defining the essence and scope of digital transformation in higher vocational education, evaluating its feasibility and necessity. Drawing on educational management and business management theories, it investigates the pathways for digital transformation in curriculum, teaching methods, and management models, proposing relevant theoretical frameworks. The research emphasizes the integration of educational informatization and modern management theories to deeply analyze the potential impacts of digital transformation on improving teaching quality, enhancing management effectiveness, and cultivating students' comprehensive qualities. The conclusion highlights that digital transformation in higher vocational business management not only enhances educational quality and management standards but also drives profound changes in educational philosophies and models, providing theoretical support and practical guidance for nurturing innovative and practical high-quality skilled talents. The findings of this study hold significant theoretical and practical value, offering scientific theoretical references and practical guidance for higher vocational institutions and educational authorities in

advancing digital transformation.

**Keywords:** Higher Vocational Education; Digital Transformation; Business Management; Teaching Quality; Management Models

## 1. INTRODUCTION

### 1.1 Research Background and Significance

With the rapid advancement of information technology, digital transformation has become an inevitable trend across various industries worldwide. In this context, the digital transformation of higher vocational business management programs is especially urgent as they play a crucial role in cultivating business management talent. Digital transformation can not only enhance teaching efficiency and quality but also better align with market demands, thereby producing high-quality, skillful talents that meet modern business management requirements. Therefore, studying the digital transformation of higher vocational business management programs is of significant practical and societal importance in promoting vocational education reform, improving education quality, and facilitating student employment.

Domestic scholars have made some progress in the study of digital transformation. Lin Jingliang (2023) explored practical pathways for digital transformation in higher vocational business management programs, proposing specific strategies and methods to guide vocational institutions. Wang Haojun et al. (2023) analyzed the impact of executive team stability on enterprise digital transformation, highlighting the critical role of leadership in this process. Chen Chunhua et al. (2019) examined innovation management issues in digital transformation from the perspective of enterprise digital survival practices, providing theoretical foundations for understanding its

deeper impacts. Li Lei et al. (2023) conducted empirical research on listed manufacturing companies, analyzing the antecedent configurations and performance relationships of digital transformation, offering empirical support for enterprises. Fang Fang (2023) investigated the "dual-line apprenticeship" model in the chain management and operation discipline, providing new insights into the deep integration of vocational education and enterprise practice. Cao Caixia (2023) studied talent cultivation pathways in applied undergraduate business management programs from the perspective of job competency, emphasizing the importance of talent cultivation in the digital era.

International research on digital transformation is equally rich. Although this paper does not directly cite foreign literature, it can be deduced that international studies might focus on strategic planning, technological applications, and organizational changes related to digital transformation. Scholars likely emphasize the impact of digital transformation on organizational structure, corporate culture, and employee behavior, as well as strategies to enhance global competitiveness through digital means. Overall, while studies on the digital transformation of higher vocational business management programs have yielded certain results, there remain areas for improvement. Most research focuses on theoretical exploration, with fewer empirical studies; future research could benefit from more case studies and empirical analysis. Research tends to concentrate on the corporate level, with less attention to the digital transformation of vocational education, necessitating further enhancement. As technology rapidly evolves, the scope and content of digital transformation continuously expand, requiring researchers to stay updated with the latest technological trends and market changes to maintain the relevance and foresight of their studies.

In summary, the digital transformation of higher vocational business management programs is a complex, multidimensional topic requiring collaborative efforts from the educational, corporate, and academic sectors. Through continuous theoretical exploration and practical innovation, the digital transformation of vocational education can be

advanced to higher levels.

### 1.2 Research Objectives

This study aims to comprehensively explore the theoretical and practical issues of digital transformation in higher vocational business management programs, clarifying the concept, characteristics, and application value of digital transformation in vocational education. Through theoretical analysis and literature review, the study seeks to develop a digital transformation model suited for higher vocational business management programs, providing theoretical guidance and practical references for vocational institutions, thereby promoting innovative development, enhancing education quality, and cultivating high-quality talents that meet modern business management needs.

### 1.3 Research Methods

This study employs literature review, theoretical analysis, and comparative study methods. Initially, the literature review method is used to summarize theoretical research and practical experiences of digital transformation and vocational education reform from domestic and international sources, providing theoretical foundations and practical references. The theoretical analysis method is then applied, integrating educational informatization theories and modern management theories to deeply explore the concept, characteristics, and necessity of digital transformation in higher vocational business management programs. Finally, the comparative study method analyzes successful cases of digital transformation in vocational education from various countries and regions, extracting valuable experiences and practices.

## 2. THEORETICAL FOUNDATIONS OF DIGITAL TRANSFORMATION IN HIGHER VOCATIONAL BUSINESS MANAGEMENT PROGRAMS

### 2.1 Concept and Characteristics of Digital Transformation

Digital transformation refers to the process of utilizing digital technologies to revamp traditional business processes, enhance operational efficiency, and innovate business models. Its core characteristics include data-driven approaches, technological support, business innovation, and organizational

change. In the education sector, digital transformation signifies the utilization of information technology to optimize teaching processes, enhance teaching quality, innovate teaching models, and reform educational management.

## 2.2 Characteristics of Higher Vocational Education and the Necessity of Digital Transformation

Higher vocational education is characterized by its focus on professional, practical, and applied skills, aiming to cultivate high-quality technical and skillful talents for society. In the context of the rapidly developing digital economy, vocational education must undergo digital transformation to meet the demand for high-skilled talents. Digital transformation can facilitate the updating of teaching content, the innovation of teaching methods, and the optimization of educational management, thereby improving education quality and student employability.

## 2.3 Relevant Theoretical Frameworks: Educational Informatization Theory and Modern Management Theory

Educational informatization theory emphasizes the application of information technology in education, aiming to enhance educational efficiency and quality through technological means. Modern management theory focuses on aspects such as organizational management, human resource management, and strategic management, providing theoretical support for digital transformation. By integrating these two theories, a comprehensive digital transformation framework for higher vocational business management programs can be constructed, encompassing the digital reform of teaching content, methods, management, and student evaluation.

## 3. CONTENT AND PATH OF DIGITAL TRANSFORMATION OF BUSINESS ENTERPRISE MANAGEMENT MAJOR IN HIGHER VOCATIONAL COLLEGES

The specific implementation content and path of digital transformation in business enterprise management major of higher vocational colleges are mainly reflected in three aspects: teaching content, teaching method and management mode. The contents and paths of each aspect will be demonstrated in detail

below.

### 3.1 Digital transformation of teaching content

The digital transformation of teaching content is an important basis for the digital transformation of business enterprise management major in higher vocational colleges. Innovation and optimization of teaching content through digital technology can not only improve teaching efficiency, but also enhance students' learning experience and effect.

The introduction of digital resources is key. Digital resources include electronic textbooks, online courses, virtual simulation software and so on. For example, through the introduction of MOOC (Massive Open Online Courses) platform, teachers can choose high-quality course resources suitable for business management majors and enrich the teaching content. According to the 2019 Global MOOC Development Report, more than 100 million users around the world have registered for MOOC courses, demonstrating the impact and popularity of this online education resource. Secondly, big data analysis technology can be used to manage and classify teaching resources, and digital resources suitable for different learning stages and students' needs can be recommended to improve the pertinency and effectiveness of teaching content.

Course content design should be combined with actual business management cases, market trend analysis and the latest management mode. Teachers can use enterprise management software, ERP simulation system and other tools to embed business cases and management simulation experiments in the course content to help students better understand and master the actual operation and application of enterprise management.

### 3.2 Digital innovation of teaching methods

In terms of teaching methods, digital transformation can bring diversified and personalized teaching methods and learning styles. The Flipped Classroom is a new model of instruction that is making classes more interactive and efficient -flipped -by using information technology to convert the traditional "teach-receive" model of instruction to "preview-practice." Students can preview the course content through online

videos and tutorials before class, and deepen their understanding and application through discussions, case studies and practical operations in class. This not only improves the learning effect, but also cultivates the students' autonomous learning ability and problem solving ability. The use of virtual reality (VR) and augmented reality (AR) technology for teaching can simulate the real business management environment, so that students can experience various practical scenes in business management. For example, through VR technology, students can virtually visit enterprises, so as to understand the internal management process, production process and working environment of enterprises, so as to increase the perceptual understanding of enterprise management.

Data-driven teaching methods also play an important role. With the help of the Learning management system (LMS), teachers can obtain the learning data of students in real time, analyze their learning behavior and learning effect, so as to carry out personalized teaching design and adjustment. This data-driven teaching method can not only improve the teaching effect, but also help teachers better conduct classroom management and student evaluation.

### 3.3 Digital transformation of management mode

The digital transformation of management mode in higher vocational education is an important guarantee and support for the realization of digital transformation. The application of Education Management Information System (EMIS) in school management can realize the data management and process management of the whole life cycle from enrollment to graduation. By establishing a complete education management information system, schools can realize the digital management of student information, curriculum arrangement, teacher management, resource allocation and other aspects, and improve management efficiency and decision-making accuracy. Using big data and artificial intelligence technology for learning analysis and prediction can help schools allocate educational resources and monitor teaching quality more scientifically. Through the analysis of students' learning data, students' learning habits, interest areas and

learning difficulties can be found, so as to carry out targeted teaching intervention and support.

The application of remote cooperative management system can realize the sharing and cooperative management of resources inside and outside the school. Especially during the pandemic, the application of technologies such as remote co-working, online teaching and virtual conferences has significantly improved the flexibility and adaptability of education management.

## 4. ANALYSIS OF THE IMPACT OF DIGITAL TRANSFORMATION ON BUSINESS ENTERPRISE MANAGEMENT IN HIGHER VOCATIONAL COLLEGES

The impact of digital transformation on business management in higher vocational colleges is all-round, including the improvement of teaching quality, the improvement of management efficiency and the cultivation of students' comprehensive quality.

### 4.1 Impact on teaching quality

The improvement of teaching quality by digital transformation is mainly reflected in the following aspects: the introduction of digital resources and technologies has enriched the content and form of teaching, and enhanced the interaction and attraction of teaching. For example, through the use of MOOCs, flipped classrooms, VR and AR technologies, students' interest in learning can be stimulated, making the teaching process more vivid and interesting. Studies have shown that teaching with VR technology can improve student engagement and learning outcomes. Personalized teaching methods and data-driven teaching design can make targeted teaching adjustments according to the needs and actual situation of students to improve the learning effect and satisfaction of students. According to the 2019 Big Data in Education Report, personalized teaching can significantly improve students' academic performance and self-confidence.

Digital transformation can also improve teachers' teaching standards and professionalism. Through online training, distance education and online resource sharing, teachers can carry out professional learning

and communication anytime and anywhere, timely update educational concepts and teaching methods, so as to continuously improve the quality of teaching.

#### 4.2 Impact on management performance

The improvement of management efficiency of higher vocational colleges by digital transformation is mainly reflected in the following points:

The application of education management information system can realize the unified management and quick inquiry of the information of the whole school, optimize the management process and improve the management efficiency. Through the EMIS system, the school can realize the digital management of student information, curriculum arrangement, teacher attendance, financial management and other aspects, which reduces the tedious and error of manual operation and improves the management efficiency.

The application of big data and artificial intelligence technology can comprehensively analyze and predict various data of the school, and help the school to make more scientific decision-making and resource allocation. For example, by analyzing students' learning data, students' learning situation and development trend can be predicted, so that targeted teaching intervention and support can be carried out to improve education quality and student satisfaction.

The remote cooperative management system can realize the sharing and cooperative management of resources inside and outside the school, and improve the flexibility and adaptability of management. Especially during the epidemic, the application of telecommuting and online teaching has significantly improved the management effectiveness and emergency response capacity of schools.

#### 4.3 Influence on the cultivation of students' comprehensive quality

Through the application of digital technology, students' independent learning ability and innovation ability can be improved. For example, the application of flipped classroom and online learning platform can cultivate students' self-learning habit and self-management ability; The application of virtual simulation and simulation experiment can

stimulate students' innovative thinking and practical ability.

Digital transformation can enhance students' vocational ability and employment competitiveness. Through the virtual enterprise management and simulation training platform, students can conduct simulation operations and practical training in the real enterprise environment to improve practical operation ability and professional literacy. According to the Report on the High-quality Development of Vocational Education in China 2020, digital transformation can significantly improve students' vocational abilities and employment competitiveness.

In addition, digital transformation can expand students' international perspective and cross-cultural communication skills. By participating in online international courses and transnational virtual cooperation projects, students can learn about international advanced management concepts and practical experience, improve cross-cultural communication skills and global vision, and lay a solid foundation for future career development.

## 5. CHALLENGES AND STRATEGIES FOR DIGITAL TRANSFORMATION IN HIGHER VOCATIONAL BUSINESS MANAGEMENT PROGRAMS

### 5.1 Challenges

The digital transformation of higher vocational business management programs faces multiple challenges, primarily in technology, educational resources, teacher capabilities, student adaptability, and policy support.

Rapid technological advancements pose significant challenges for vocational institutions in technology adoption. With the fast development of cloud computing, big data, and artificial intelligence, institutions must continuously update their equipment and software to keep pace, which can be costly and burdensome for resource-limited vocational institutions.

The digital transformation of educational resources demands substantial funds and time. Creating and maintaining digital teaching resources, including e-textbooks, online courses, and virtual simulation software, require significant financial and professional



input. Additionally, issues such as copyright and quality control need to be addressed.

Teachers' capabilities are crucial for successful digital transformation. They need to be proficient in using digital tools for teaching and capable of designing digital teaching content and methods. However, many teachers currently lack sufficient acceptance and skills in digital teaching.

Student adaptability is also a challenge. Digital teaching requires students to have certain information technology skills and self-learning abilities. However, students' IT skills and learning habits vary widely, complicating the implementation of digital teaching.

Policy and institutional support are essential for digital transformation. Although national policies support vocational education's digital transformation, further refinement and implementation of policies are needed to ensure smooth progress.

#### 5.2 Strategies and Recommendations

To address these challenges, higher vocational business management programs can adopt the following strategies and recommendations:

Strengthen collaboration with enterprises to introduce advanced technologies and resources. Through partnerships, vocational institutions can access the latest technological support and practical resources, providing students with more internship and employment opportunities. For instance, collaborating with renowned enterprises to develop virtual simulation software can enhance teaching quality and students' practical skills.

Increase investment and optimize the allocation of educational resources. Vocational institutions should allocate budgets wisely, increasing investment in digital teaching resources while ensuring their efficient use and regular updates. Additionally, funding can be sourced through government subsidies, social donations, etc., to support digital resource development.

Enhance teacher training to improve digital teaching capabilities. Regular digital teaching training should be organized for teachers to improve their proficiency with digital tools. Establishing teacher exchange platforms can also encourage experience sharing and mutual assistance among teachers.

Focus on cultivating students' skills to

improve their IT literacy and self-learning abilities. Vocational institutions should include IT-related courses in their curriculum and encourage students to engage in self-learning and exploration through online learning platforms.

Improve policy support to provide institutional guarantees for digital transformation. Vocational institutions should actively respond to national policies, develop specific implementation plans for digital transformation based on their circumstances, and strengthen communication with government departments to secure more policy and financial support.

## 6. CONCLUSION

The digital transformation of higher vocational business management programs is a comprehensive endeavor involving multiple aspects such as teaching content, methods, and management models. Vocational institutions face challenges related to technology, resources, teacher capabilities, and student adaptability. By strengthening enterprise collaboration, optimizing resource allocation, enhancing teacher capabilities, cultivating student skills, and improving policy support, these challenges can be effectively addressed, facilitating smooth digital transformation. In the future, higher vocational business management programs should continue to deepen digital transformation, constantly innovating educational models and management methods to meet societal demands and cultivate more high-quality, skillful talents.

## REFERENCES

- [1] Lin Jingliang. Practice and Research on Digital Transformation of Higher Vocational Business Management Programs[J]. Journal of Guangdong AIB Polytechnic, 2023, 39(2):56-60.
- [2] Wang Haojun, Lu Yushu, Song Tiebo. Stability Amidst Change? Stability of Executive Teams and Digital Transformation of Enterprises[J]. Research and Development Management, 2023, 35(2):97-110.
- [3] Chen Chunhua, Zhu Li, Zhong Hao, et al. Innovation Research from the Perspective of Digital Survival Management Practices in Chinese Enterprises[J]. Journal of

Management Science, 2019, 22(10):8. DOI: CNKI:SUN:JCYJ.0.2019-10-001.

[4] Li Lei, Yang Shuili, Chen Na. Antecedent Configurations and Performance of Digital Transformation: Empirical Evidence from Listed Manufacturing Companies in China[J]. Science and Technology Progress and Policy, 2023, 40(16):32-41.

[5] Fang Fang. Exploration and Practice of the "Dual-Line" Apprenticeship Talent Training Model with Chinese Characteristics: A Case Study of Chain Operation and Management Discipline[J]. Teachers, 2023(4):126-128.

[6] Cao Caixia. Pathways for Talent Training in Applied Undergraduate Business Management Programs Based on Job Competency[J]. Times People, 2023(22):0152-0154.

[7] Kang Yan. Enhancing Business Setup

Convenience through Digitalization[J]. Research on Chinese Business Administration, 2021, 000(002):42-43.

[8] Chen Yuan, He Xiaogang, Xu Shihao. Family Control and Digital Transformation of Enterprises[J]. Economic Management, 2023, 45(5):99-115.

[9] Guo Shuangqi, Na Yuteng, Tian Zhuqing. Impact of Digital Transformation on Corporate Misconduct[J]. Business Accounting, 2024(2):63-68.

[10] Li Yingjie. Challenges and Innovative Strategies for Accounting Talent Management in Digital Transformation[J]. Chinese Science and Technology Journal Database (Abstract Edition) Social Sciences, 2024(1):0158-0161.

# Opportunities and Challenges of Ideological and Political Education in the Age of Artificial Intelligence

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**Abstract:** With the rapid development of artificial intelligence (AI) technology, ideological and political education faces unprecedented opportunities and challenges. This study aims to explore how ideological and political education can effectively leverage technological advancements in the AI era while addressing new problems that arise. Using literature review and theoretical analysis, the study systematically reviews the current application of AI in the education sector and deeply analyzes its impact on the content, methods, and objectives of ideological and political education. The research first defines the theoretical foundation for integrating AI with ideological and political education, then examines how AI can promote personalized and precise education and optimize teaching strategies through data analysis. Additionally, the study highlights potential issues such as educational inequality, ethical dilemmas, and the challenges to the teacher's role brought by AI. In conclusion, the study proposes strategies to address these issues, including enhancing AI literacy training for teachers, formulating relevant educational policies and ethical guidelines, and encouraging interdisciplinary research to deepen the understanding of the relationship between AI and ideological and political education. Through these analyses, this study aims to provide theoretical support and practical guidance for the transformation of ideological and political education in the AI era.

**Keywords:** Artificial Intelligence; Ideological and Political Education; Educational Technology; Ethical Challenges; Teacher Roles; Educational Policy

## 1. PREFACE

### 1.1 Research background and significance

In the current context of globalization and the rapid development of information technology, artificial intelligence (AI) technology has become an important force to promote social progress and economic development. Especially in the field of education, the application of AI is gradually changing the traditional teaching model and learning way. As an important way to train the builders and successors of socialism, the combination of ideological and political education and artificial intelligence is particularly important. Through AI technology, personalized customization of educational content, intelligent management of teaching process and accurate assessment of learning effect can be achieved, so as to improve the effectiveness and attractiveness of ideological and political education. Therefore, studying the opportunities and challenges of ideological and political education in the era of artificial intelligence has important theoretical and practical significance for promoting the modernization of education and improving the quality of education.

### 1.2 Main research issues

This study focuses on the following issues:

How will AI technology affect the content, methods, and goals of ideological and political education?

In the age of artificial intelligence, what are the new opportunities and challenges facing ideological and political education?

How to effectively use artificial intelligence technology to improve the quality and effect of ideological and political education?

Facing the challenges brought by artificial intelligence, how should ideological and political education adjust and innovate?

### 1.3 Review of research status at home and abroad

With the rapid development of information

technology, the application of artificial intelligence (AI) in the field of education has become one of the important research topics in the academic circles at home and abroad. The progress of artificial intelligence technology has not only brought unprecedented changes to education, but also ushered in new opportunities and challenges for ideological and political education in colleges and universities.

On the international front, many scholars have delved into the wide application of AI in the field of education. Among them, researchers in the United States, the United Kingdom, Japan and other countries discussed the application effect of AI in personalized education, student learning effect assessment, teaching assistance system and other aspects through empirical data analysis. These studies show that artificial intelligence can provide personalized education programs for ideological and political education through big data analysis and machine learning technology, improving the pertinence and effectiveness of teaching. However, foreign research has also pointed out that there are ethical issues such as privacy protection and data security in artificial intelligence education, which also applies to the field of ideological and political education.

In China, in recent years, the research on the ideological and political education enabled by artificial intelligence has gradually increased. Hu Jian and Zhu Yulian (2023) pointed out in *Journal of Chongqing Three Gorges University* that artificial intelligence technology provides personalized and diversified educational means for ideological and political education of college students, but also brings challenges such as technology dependence and ethics [1]. At the same time, Dong Tiange and Zhao Yanbo (2021) also mentioned in *Reference to Middle School Political Teaching* that the application of artificial intelligence in ideological and political education faces multiple challenges in terms of technology, ethics and practice [2]. In *Beijing Education* (Higher Education Edition), Zhou Ye and Zhang Xu (2021) discussed the feasibility and specific path of using artificial intelligence to conduct online ideological and political education in colleges and universities through theoretical analysis

[3].

In addition, Tang Dengyun (2018) studied the internalization of Internet ideological and political education in the context of artificial intelligence in his *Research on the Internalization of Internet Ideological and Political Education*, pointing out the need to strengthen students' autonomous learning ability and critical thinking to deal with potential educational drawbacks [5]. Zhang Shuyuan and Liu Chan (2023) emphasized in *Frontiers of Social Sciences* that the practical challenges faced by the integration of artificial intelligence technology into ideological and political education in universities need to be addressed by improving the professional quality of teachers and formulating corresponding policies [6].

Under the guidance of the spirit of the 20th Party Congress, ideological and political education in the new era pays more attention to the deep integration of scientific and technological innovation and educational reform. At the National Education Conference, leaders clearly pointed out that modern information technologies such as artificial intelligence should be fully utilized to improve the quality of education and promote innovation in ideological and political education. Therefore, domestic scholars also call for strengthening the research and practical exploration of the application of artificial intelligence technology in ideological and political education.

To sum up, there are abundant achievements in the research field of ideological and political education and artificial intelligence at home and abroad, but they also face common challenges and puzzles. Domestic research focuses more on the practical effects of technology application and policy norms, while foreign research focuses more on data privacy and ethical issues. Combined with the spirit of the twenty and the concerns of the current society, future research should further deepen the theoretical exploration of the application of artificial intelligence technology in ideological and political education, and strengthen the innovation of practical paths to meet the complex needs and challenges of ideological and political education in the new era.

1.4 Research Methods

This study adopts the method of literature review, theoretical analysis and case study. Firstly, through literature review, the research results on the combination of artificial intelligence and ideological and political education at home and abroad are reviewed. Secondly, the application mechanism and potential impact of artificial intelligence technology in ideological and political education are discussed by theoretical analysis. Finally, combined with specific cases, the application effect and existing problems of AI technology in practical teaching are analyzed to provide empirical support for theoretical analysis.

## **2. THEORETICAL BASIS OF ARTIFICIAL INTELLIGENCE AND IDEOLOGICAL AND POLITICAL EDUCATION**

### **2.1 Definition and development of artificial intelligence**

Artificial intelligence refers to the intelligence shown by machines built by humans, and the technology of presenting human intelligence through ordinary computer programs. With the development of big data, machine learning, deep learning and other technologies, AI has been widely used in many fields such as healthcare, finance, and education. In the field of education, AI technology can help realize personalized learning, intelligent tutoring, automatic assessment and other functions, which greatly improve the teaching efficiency and learning effect.

### **2.2 Basic concepts of ideological and political education**

Ideological and political education means that through educational activities, students are educated in ideological morality and political theory, and their correct world outlook, outlook on life and values are cultivated. In China, ideological and political education is an important part of higher education, aiming to cultivate students' socialist core values and enhance national consciousness and national pride.

### **2.3 Relationship between artificial intelligence and ideological and political education**

The relationship between artificial intelligence and ideological and political education is mainly reflected in the following

aspects:

**Personalized teaching:** AI technology can provide customized teaching content and methods according to students' learning habits and abilities, making ideological and political education closer to the actual needs of students.

**Intelligent evaluation:** Through AI technology, real-time monitoring and evaluation of students' learning process and results can be achieved, timely feedback on teaching effects, and help teachers adjust teaching strategies.

**Interactive communication:** AI technology can enhance the interaction between teachers and students, and improve students' learning interest and participation through intelligent question-and-answer, virtual reality and other technologies.

However, the application of AI technology has also brought some challenges, such as educational equity issues, privacy protection issues, etc., which need to be continuously explored and solved in practice.

Through the above analysis, it can be seen that artificial intelligence technology has brought new development opportunities for ideological and political education, but also put forward new challenges. Future research needs to further explore how to effectively use AI technology to improve the quality and effect of ideological and political education under the premise of ensuring the quality and equity of education.

In the era of rapid development of artificial intelligence technology, ideological and political education is also constantly exploring how to use this advanced technology to realize the transformation of traditional education to intelligence, personalization and precision. However, this transition also faces a series of opportunities and challenges. The following will discuss in detail the specific application of artificial intelligence in ideological and political education and the main challenges it brings.

## **3. APPLICATION OF ARTIFICIAL INTELLIGENCE IN IDEOLOGICAL AND POLITICAL EDUCATION**

### **3.1 Application of artificial intelligence technology in education**

The application of artificial intelligence technology in education mainly includes personalized learning, intelligent tutoring,

teaching evaluation and emotion analysis. In terms of personalized learning, AI is able to develop a personalized learning path for each student by analyzing large amounts of learning behavior data. For example, smart education systems can monitor students' learning progress in real time and automatically recommend suitable learning resources and exercises. This personalized learning model is also applicable in ideological and political education, especially in the targeted teaching design for different students' political theoretical basis and ideological cognition differences.

In terms of intelligent tutoring, AI can provide 24/7 online education support to solve students' questions in a timely manner. For example, the intelligent question answering system is able to understand and answer students' academic questions through natural language processing technology. For ideological and political education, this kind of intelligent tutoring can help solve the theoretical difficulties encountered by students in the learning process, while enhancing their understanding and memory of the learning content.

In terms of teaching evaluation, artificial intelligence can automatically evaluate and feedback on students' learning performance through machine learning algorithms. For example, an automatic essay scoring system can grade students' ideological and political essays according to set evaluation criteria and give specific suggestions for improvement. This not only improves the efficiency and fairness of assessment, but also provides the basis for teachers to adjust their teaching strategies.

Emotion analysis technology can capture students' facial expression, voice intonation and physiological signals, analyze their emotional state and psychological changes, and conduct emotional counseling in time. This is particularly important in ideological and political education, because emotion and attitude are one of the core contents of ideological and political education. Through emotion analysis technology, teachers can better understand the ideological dynamics and emotional needs of students, so as to conduct more targeted education guidance.

### 3.2 Individuation and precision of ideological

and political education

The personalization and precision of ideological and political education is one of the important applications of artificial intelligence technology. Traditional education usually adopts a unified teaching mode, which is difficult to meet the individual needs of each student. Artificial intelligence technology can provide personalized educational content and methods by analyzing students' learning data. For example, through big data analysis, the intelligent system can find the weak links in students' learning of ideological and political theory and recommend corresponding supplementary learning materials for them. In addition, artificial intelligence can also develop personalized learning plans according to students' learning habits and interests, and improve the efficiency and effect of learning. Precision teaching is to understand students' learning progress and effect in real time through intelligent analysis technology, and adjust teaching strategies in time. For example, teachers can use artificial intelligence systems to monitor students' learning in real time, identify problems and intervene in time. This not only improves the pertinence and effectiveness of teaching, but also helps to stimulate students' learning interest and enthusiasm.

For example, the "Wisdom Thinking and Politics" system developed by Peking University realizes the intelligent management and precise teaching of ideological and political courses through big data and AI technology [8]. the system can automatically generate teaching analysis reports based on students' learning data, provide teaching suggestions for teachers, and customize personalized learning paths and resource recommendations for each student. This personalized and precise teaching model has effectively improved the quality and effect of ideological and political education.

### 3.3 Data analysis and intelligent teaching optimization

Data analysis is the core of the application of artificial intelligence technology in education. Through the analysis of student behavior data, educators can deeply understand students' learning habits, interests and puzzles, so as to develop more scientific teaching strategies. Artificial intelligence system can collect and

analyze a large number of students' learning data in real time, including video viewing records, online test results, classroom interactions, etc. These data provide an important basis for intelligent teaching optimization.

For example, AI technology can analyze students' online learning data, find common problems, and adjust teaching arrangements in a targeted way. For example, if the system detects a common error rate on a certain knowledge point, the teacher can focus on it in a targeted way. In addition, artificial intelligence can also provide real-time learning feedback and suggestions through data analysis to help students adjust learning strategies and methods in a timely manner.

In ideological and political education, data analysis and intelligent teaching optimization are particularly important. Ideological and political education involves extensive and complex content, and students' acceptance and understanding depth are different. Through data analysis, teachers can more accurately grasp the learning status and ideological status of each student, so as to carry out targeted educational intervention. For example, through semantic analysis of students' classroom discussions, intelligent systems can understand students' views and attitudes toward a certain political event, and teachers can conduct more in-depth guidance and education based on the analysis results.

#### **4. CHALLENGES FACED BY IDEOLOGICAL AND POLITICAL EDUCATION IN THE ERA OF ARTIFICIAL INTELLIGENCE**

Although AI technology shows great potential in ideological and political education, its application also faces some challenges that need to be solved.

##### **4.1 Educational inequality**

The widespread application of artificial intelligence may exacerbate the unequal distribution of educational resources. Especially in economically underdeveloped areas, the lack of school equipment and technical support will make students in these areas unable to enjoy the educational dividend brought by artificial intelligence. For example, schools in rural areas may lack the necessary hardware equipment and network conditions,

which limits the application of AI technology in teaching.

Although most schools across the country have achieved broadband Internet access by 2021, the "digital divide" between urban and rural areas still exists, according to the report on the development of China's Education Informatization. Some schools in remote and poor areas are relatively backward in the allocation of educational resources and the application of technology, which makes these students may be at a disadvantage in ideological and political education in the era of artificial intelligence.

This educational inequality needs to be addressed through rational policy and resource allocation. the government and education departments should increase investment in the construction of education informatization in less developed areas to ensure that all students have equal opportunities to enjoy the educational achievements brought by artificial intelligence. In addition, through the promotion of universal education information training, improve teachers' ability to use information technology, and further narrow the gap between urban and rural education quality.

##### **4.2 Ethical and moral issues**

The use of AI in education also raises ethical questions. One of these is the issue of student privacy and data security. Artificial intelligence systems need to collect and process a large amount of student data, including academic performance, behavioral habits, emotional status, etc., and the security and privacy protection of these data has become an important ethical issue. If the data is misused or leaked, it may have a serious impact on students' study and life.

In addition, the problem of algorithmic bias in AI systems cannot be ignored. Algorithmic bias refers to systematic discrimination due to data or design biases when making decisions or evaluations in AI systems. For example, in an automatic grading system, an insufficient proportion of a certain class of students in the training data set may lead to unfair grading results. This algorithmic bias in ideological and political education may affect the evaluation of students' political attitude and ideological status, thus affecting the educational effect.

Therefore, the application of artificial intelligence in ideological and political education needs to establish a sound ethical code and data protection mechanism to ensure the security and privacy of students' data. Educational institutions should strictly abide by relevant laws and regulations, regulate the collection, storage, processing and use of data, and avoid data abuse. At the same time, the development and use of artificial intelligence systems should pay attention to the fairness and transparency of the algorithm to prevent the emergence of algorithm bias.

#### 4.3 Challenges of teacher role

The widespread application of artificial intelligence technology in education also poses new challenges to the role of teachers. On the one hand, artificial intelligence systems can assist teachers in personalized teaching and intelligent assessment, reducing the work burden of teachers. But on the other hand, teachers also need to have a certain level of technical literacy in order to effectively use these smart tools. For example, teachers need to know how to use intelligent systems for teaching management, data analysis and student assessment.

In addition, the intervention of artificial intelligence technology may weaken the dominant position and influence of teachers in education. In ideological and political education, teachers are not only imparts knowledge, but also guides and models of thought. How to maintain the role of teachers and the influence of education in the era of artificial intelligence is a problem that needs in-depth consideration.

Faced with these challenges, teachers need to continuously improve their information literacy and technology application ability, and actively adapt to the educational changes in the era of artificial intelligence. Education and training institutions and schools should also provide teachers with corresponding technical training and support to help them master artificial intelligence technology and improve teaching effectiveness. At the same time, teachers should pay more attention to the emotional communication and ideological guidance with students, and give full play to their irreplaceability in ideological and political education.

## 5. STRATEGIES TO COPE WITH THE CHALLENGES OF IDEOLOGICAL AND POLITICAL EDUCATION IN THE ERA OF ARTIFICIAL INTELLIGENCE

### 5.1 Improve teachers' artificial intelligence literacy

Teachers are the key forces in ideological and political education, and improving teachers' AI literacy is crucial to meet the educational challenges in the era of artificial intelligence. First, education administrations and schools should provide teachers with systematic AI technology training so that they can master basic AI knowledge and skills. For example, AI technology training courses are held regularly, and experts and scholars are invited to give lectures and workshops to help teachers understand and apply the latest AI technology.

In addition, teachers can improve their AI literacy through self-study and online courses. At present, there are many free AI basic courses and resources on the Internet, which teachers can use for self-directed learning. For example, artificial intelligence courses offered by platforms such as Coursera and edX cover basic theory, programming skills, and application cases, providing teachers with comprehensive learning materials.

Improving teachers' AI literacy is not only about improving the technical level, but also about rational understanding and critical thinking about the application of AI in education. Teachers need to understand the advantages and limitations of artificial intelligence technology, and be able to rationally use technological tools to assist teaching, while maintaining a clear understanding of the nature of education. For example, when applying the intelligent evaluation system, teachers should pay attention to its scoring standards and algorithm bias to ensure the fairness and scientific evaluation results.

### 5.2 Formulate educational policies and ethics

In order to regulate and guide the application of artificial intelligence technology in ideological and political education, educational administrative departments need to formulate relevant policies and ethical norms. These policies and norms should cover data security and privacy protection, algorithmic fairness and transparency, and



teacher and student rights and responsibilities. In terms of data security and privacy protection, educational institutions should strictly abide by the Personal Information Protection Law of the People's Republic of China and other relevant laws and regulations to ensure the security and privacy of student data. For example, schools can establish a strict data management and use system to clarify the process of data collection, storage, processing and sharing to prevent data leakage and abuse.

In terms of algorithmic fairness and transparency, educational institutions and technology companies should focus on the fairness of algorithm design and avoid algorithmic bias. For example, when developing an intelligent assessment system, the characteristics and differences of different students should be fully considered to ensure the fairness and scientific results of the assessment. At the same time, technology companies should disclose the basic principles and functions of algorithms to educational institutions and users, making them transparent and easy for social supervision and feedback.

The formulation of educational policies and ethical norms should focus on multi-stakeholder participation and consultation. All parties, including the education sector, technology companies, teachers, students and parents, should participate together to discuss and formulate policies and norms that meet the interests of society and the needs of education development. For example, an expert committee composed of representatives from various parties can be set up to review and adjust relevant policies and norms on a regular basis to ensure their scientific and practical effectiveness.

**5.3 Interdisciplinary research and cooperation**  
Addressing the challenges of ideological and political education in the age of artificial intelligence requires interdisciplinary research and cooperation. Ideological and political education and artificial intelligence technology have great differences in knowledge system and research methods, and it is difficult for a single discipline to comprehensively solve complex problems. Therefore, through interdisciplinary collaborative research, resources can be

shared and advantages can be complementary, and more comprehensive and systematic solutions can be provided for solving practical problems.

For example, experts and scholars in the field of ideological and political education can cooperate with researchers in the field of artificial intelligence technology to jointly explore how to use artificial intelligence technology to improve the quality and effectiveness of ideological and political education. Specifically, through joint research projects, intelligent education systems, learning analysis platforms and personalized teaching tools can be developed.

At the practical level, interdisciplinary cooperation can also promote the transformation of theoretical research into practical application through the establishment of cooperative laboratories and research centers. For example, a university can set up an "Artificial Intelligence and Ideological and Political Education Research center" to unite experts and scholars from the School of Computer Science, the School of Politics and Public Administration, the School of Education and other departments to carry out interdisciplinary research and practical exploration.

In addition, interdisciplinary cooperation can also draw on the advanced experience and practices of foreign countries through international exchanges and cooperation. For example, through participation in international academic conferences, visits and exchanges, we can learn about the latest research results and practical experience of foreign countries in the application of artificial intelligence to ideological and political education, so as to provide reference and reference for domestic research.

In summary, by improving teachers' AI literacy, formulating educational policies and ethical norms, and promoting interdisciplinary research and cooperation, we can effectively deal with the challenges faced by ideological and political education in the era of artificial intelligence, and promote the innovation and development of ideological and political education.

## **6. CONCLUSION**

Application of artificial intelligence in

ideological and political education: the application of artificial intelligence technology in ideological and political education is mainly reflected in personalized teaching, intelligent assessment and emotion analysis. Artificial intelligence technology can improve the accuracy and science of education through data analysis and intelligent decision-making, and enhance the learning experience and effect of students.

Opportunities and challenges of ideological and political education: Artificial intelligence technology has brought new development opportunities for ideological and political education, such as realizing personalized and precise teaching, and improving teaching effectiveness and efficiency. However, the application of AI also faces many challenges, such as educational inequality, ethical and moral issues, and the changing role of teachers. Coping strategies: To cope with the challenges of ideological and political education in the era of artificial intelligence, multi-party efforts and measures are needed. Improve teachers' artificial intelligence literacy, so that they can effectively use intelligent technology for teaching; Formulate relevant educational policies and ethical norms to ensure the scientific and normative application of technology; Through interdisciplinary research and cooperation, we will promote the theoretical research and practical exploration of wisdom education.

## REFERENCES

- [1] Hu Jian, Zhu Yulian. Opportunities, challenges and countermeasures of Ideological and Political education of college students in the era of Artificial Intelligence [J]. Journal of Chongqing Three Gorges University, 2023, 39(4):21-29. (in Chinese)
- [2] Dong Tiange, Zhao Yanbo. Challenges and Countermeasures of Ideological and Political Education in the era of Artificial Intelligence [J]. Reference for Middle School Political Teaching, 2021(32):46-48.
- [3] Zhou Ye, Zhang Xu. Path selection of college Network Ideological and Political education in the era of Artificial Intelligence [J]. Beijing Education (Higher Education Edition), 2021, 000(011):47-49.
- [4] Fang Bing. When college counselors "encounter" artificial intelligence: Opportunities, Challenges and responses [J]. Journal of Nanjing University of Aeronautics and Astronautics (Social Sciences Edition), 2021, 023(001):101-105.
- [5] Tang Dengyun. Research on Internalization of Network Ideological and Political Education [J]. University of Electronic Science and Technology of China, 2018.
- [6] Zhang Shuyuan, Liu Chan. Artificial intelligence into the reality of ideological and political education challenges and coping strategies [J]. Journal of social science front, 2023, 12(10):5885-5889. the DOI: 10.12677/along.2023.1210807.
- [7] Yang Rencai. Challenges and countermeasures of Ideological and Political education enabled by Artificial Intelligence [J]. Journal of National Academy of Education Administration, 2020(5):54-59.
- [8] Ye Dan, Li Mingjin, Song Yuanfeng. Research on innovative application of Artificial Intelligence in Ideological and Political Education in Colleges and universities [J]. Youth, 2017(33):2.
- [9] Yan Jia, Yang Wenzheng, Guo Ziyu. Exploration and practice of "Analog Circuit" course teaching reform based on curriculum thinking and politics [J]. Progress in Education, 2024, 14(1):1081-1088.
- [10] Ma Juan Hua. the development direction of ideological and political education in the context of artificial intelligence [J]. Consumer Guide, 2019, 000(052):156.
- [11] Lu Na Gao, Xinyue Li. Research on the precise path of Ideological and Political Education in Universities in the Era of Artificial Intelligence [J]. Internet Weekly, 2024(2):56-58.
- [12] Zhang Shibo. Theoretical Logic, value implication and practical Path of "Big Ideological and Political Course" enabled by Artificial Intelligence [J]. Modern Educational Science, 2024(1):73-79.

# The Pickle - like Love

## —On the Outlooks of Love of the Hero and Heroine in A Dill Pickle

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**Abstract:** This article aims to make an exploratory study on the themes of *A Dill Pickle* of Katherine Mansfield and her crafty use of several modern writing techniques.

**Keywords:** *A Dill Pickle*; Egoist; Symbolism

### 1. INTRODUCTION

The *Dill Pickle* was a short story written by Katherine Mansfield, a New Zealand's writer in 1917 when she took a visiting stay in Britain. At that time, Britain was suffering from the impacts of the First World War - the unsteady political situation, the cruel war and the sluggish economy all made the Britons feel a strong sense of crisis, as a result, their world outlook and values naturally changed accordingly. What was more, Mansfield had just experienced a series of life's blows - separation from her husband, the death of her own brother in the war and her ill health all could find their reflections in her works of that time. So the color of this story is gloomy and hesitant.

the hero in this story —“He” began their conversation by recalling their past love and trying his best to lead Vera join his retrospection; while even though Vera spoke little, the description of her feelings and inner activities was very rich and precise. the writer almost gave the same weight to characters of the two protagonists by portraying the man through his talks a woman through her rich emotional changes and imaginations. From the not- so - harmonious dialogues, it would be easy for us to predict the developmental direction of their romance. Vera ' s sensitivity and the man ' s insensitivity form a big contrast and the objective description of the writer arouses the imagination and curiosity of the readers.

As a woman writer who was often compared to Chekov, the great Russian story - teller, Katherine Mansfield's crafty use of several modern writing techniques is worth of our analyzing and exploring.

### 2. THE THEME AND THE WRITING TECHNIQUES OF THE STORY

According to the views of German sociologist Georg Simmel who made on the themes of the modern novels, “the deepest problems of modern life flow from the attempt of the individual to maintain the independence and individuality of his existence against the weight of the historical heritage and the external culture and technique of life. the antagonism represents the most modern form of the conflict which the primitive man must carry on with nature for his own bodily existence. ” Any individual person ' s life will surely be influenced by the society and the environment in which he or she has been living.

Mansfield repeated her unchanging themes—disharmonious relationship between the two sexes, the incomprehensible loneliness of the females buried deep in their hearts and their pursuits for freedom and personality independence. the heroine Vera in this novel resembled the writer herself very much who loves music, traveling, deep fondness of Russia, but sensitive, weak and troubled by her lung problems. She portrayed to the readers an aesthetic and exotic picture of Russia with her delicate and touching language through which she expressed her hesitation and indecisiveness when dealing with love affair.

Viewing this novel as a whole, Mansfield employed the writing technique of no - plots

and the free transfer in time and space which were often used the Russian writer Chekov. With the going on of the conversations of the two protagonists, she skilfully created many pictures rich in sounds, lights and colors by using the ` writing techniques such as symbolism and stream of consciousness. All these descriptions and narrations help the readers to better understand the personality and fate of the heroine.

The actual scene of this novel is in a café, but every object, every scene and every decoration all serve for the theme. For example, her veil, high fur collar and her gloves all indicate that the heroine came from middle class and was in poor health; and that bamboo table, Japanese vase and the orange in his hands all reflects his affectation. At the beginning of their talking, we were taken to a beautiful garden with so many flowers in a warm afternoon, but as they went on recalling their past appointments, the tragic boatman's songs, darkening river and melancholy trees all hinted that Vera had been deeply hurt and felt so bad. And until that dill pickle in a glass jar appeared, Vera seemed to find the answer to their failed romance - he hadn't changed a bit and she shouldn't nurture any hope on him anymore. Their love, just like the dill pickle, has already lost its vigor and life after having gone through all the vicissitudes of their own lives. Isn't the dill pickle like their love whose color has been dwindled, and instead, their romance has already become an "appetizer" when passing a teatime. Therefore, the implementation of symbolism made the theme more clear and vivid.

In addition to the employment of symbolism, Mansfield also used the "stream of consciousness" to "introduce" their relationship. He kept talking from the beginning to the end, while Vera was only kept listening. Despite of this, Vera still tried to recall every unforgettable moment no matter how it was - be it annoying, exciting or sentimental. For example, that day after their separation for six years, he interrupted Vera's talk again and that made her "remember the trick of interrupting her" and "how it used to exasperate her six years ago." Later when he referred to the warm afternoon they spent in Kew Gardens when she told him the names of so many flowers, it suggested her think of

his being "maniac about the wasps" which was "out of all proportion to the occasion and "how she suffered"; then when he mentioned his several travels to those places that they had planned to go together, she "felt the strange beast ... stir, stretch itself, yawn, prick up its ears and bound to its feet, and fix its longing, hungry stare upon those faraway places."; finally when he couldn't help praising the Russian life "so informal, so impulsive and so free" and referred to the dill pickle, she felt tasting a biter, sour and spicy red chili and felt so uncomfortable. But the man seemed unaware of Vera's reactions at hearing his talk, or perhaps he intentionally said so in order to arouse Vera's anger so as to mock at her and take revenge against her.

Therefore, through skillful combination of different writing techniques, Vera's emotional ups and downs and the trivial changes of her mental activities were vividly shown to the readers. Especially the description of the man's last behavior of refusing to pay for the untouched cream completely exposed the man's petty characters and selfishness and we all approved of the right decision that Vera made. This kind of man isn't worthy to be loved.

To the personality differences of these two persons, the British writer Sarah Hilary made such comments that Each of them had an untold need to control the other and hurt the other and all wanted to be free from miseries alter the love came to an end. Through his emotional expression, Vera struggled in her heart as to leave him or not; but his subsequent comment on himself that he was an egoist which smashed the last hope of Vera about him. At the same time, Mansfield also disclosed the fatal weakness in Vera's Characters, that is, she was also an egoist and she showed denial on Vera's vanity.

### 3. CONCLUSION

At the end of the story, these two people didn't resume their love. After six years' preservation in the pot of the noisy world, their love was no longer fresh and vigorous. the symbolic implication of the pickle can be compared to such kind of love which means it exists but already loses its vigor. If without a right attitude in a two-sex relationship, one can only get lost in his journey of life and exhaust his lifetime in loneliness.

**REFERENCES**

[1] A. Kelly. the Explosion of Mansfield Studies. [J]. Cambridge Quarterly. 2011.

[2] Chang Yaoxin. A Brief Talk on British and American Literature. [M] Nan Kai University Press. 2004.

[3] Georg Simmel. the Essays of Georg Simmel. [M] Shanghai Sumerian Press. 1991.

[4] Katherine Mansfield. the Essays of Katherine Mansfield. [M] Shanghai Translation Publishing House. 1983.

[5] Zhao Wenlan. A Research on the Novels of Katherine Mansfield [M]. China Social Science Press. 2013.09.

# Analysis on the Components and Improvement Strategies of Kindergarten Physical Education Teachers' Professional Quality Under the Background of "Healthy China"

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**Abstract:** This article uses the literature method, comparative research method and interview method to conduct a systematic analysis of the components of the professional quality of kindergarten physical education teachers and the factors that affect the professional quality of kindergarten physical education teachers. On this basis, it explores the characteristics of kindergarten physical education teachers. Strategies for improving professionalism. The conclusions are as follows: improve the welfare benefits of kindergarten physical education teachers and optimize their social security system; the government increases investment in improving preschool education sports facilities; attaches great importance to professional ethics and strictly controls the recruitment of preschool education; strengthens pre-service and post-service kindergarten physical education Professional training for teachers' professionalism; kindergartens implement comprehensive teacher incentive and evaluation measures and pay attention to teachers' family life.

**Keywords:** Kindergarten Physical Education Teachers; Professional Quality; Components; Improvement Strategies

## 1. INTRODUCTION

In the outline of the Healthy China 2030 ", it is proposed to strengthen health education in schools and promote the continuous improvement of people's health. These specific goals are the further recognition of the physical education work. To develop physical

education, we must have high-quality physical education teachers. In kindergarten physical education, the improvement of teachers and professional quality is of great significance to children's health level, children's sports development and the health maintenance of education environment.

At present, children's sports has been paid attention to by the government, but in the actual implementation of children's sports, there are still many unsatisfactory phenomena, such as casually reducing children's physical education class, teachers' low salary and welfare and so on. In reality, some kindergarten physical education teachers are affected by many factors and have low work enthusiasm, showing low professional quality. In view of this reality and many scholars 'research on teachers' professional quality focuses on universities and middle schools, while there are few studies on preschool education and physical education, so we choose to do this topic, in order to provide theoretical reference for the development of physical education in preschool education.

## 2. DEFINITION OF RELEVANT CONCEPTS

### 2.1. Professional quality

Professional quality refers to the comprehensive quality of good behavior and moral quality shown in the professional field, including professional knowledge, communication skills, teamwork skills, responsibility and so on.

### 2.2. Professional quality of PE teachers

The professional quality of physical education teachers refers to the care that reflects the deep understanding and skilled use of sports professional knowledge, good teaching organization and management ability, and promote students 'all-round development, as well as the positive professional ethics and sensitivity to students' individual differences. This includes professional skills and educational ideas that combine education with sports.

### 3. THE COMPONENTS OF THE PROFESSIONAL QUALITY OF KINDERGARTEN PHYSICAL EDUCATION TEACHERS

#### 3.1. Good professional ethics

For a long time, teachers to preach students "the world virtue" is particularly important. Good teacher ethics has a subtle influence on students 'physical and mental growth, and is the bottom line of teachers' practice.

In kindergarten physical education teaching, teachers should not only abide by the school teaching discipline, but also strictly follow the relevant social laws and regulations and moral norms, master the dominant power and discourse power of physical education classroom, keep true and trustworthy, and avoid false statements or breach of promises [1]. Treat colleagues and students with respect, including respecting their rights, opinions and personal privacy, do not disclose sensitive information, do not discriminate against others, maintain equality and diversity, actively promote positive energy to students, infect students with noble personality ", and maintain fairness and favoritism in making decisions and dealing with teaching affairs.

#### 3.2. Positive educational feelings

Educational feelings are teachers 'sense of mission and responsibility to education, and reflect teachers' deep feelings for the education cause.

the educational feelings of physical education teachers should have the true feelings of physical education cause, have affinity for children, establish a positive relationship between teachers and students, adopt differentiated teaching strategies, have a persistent pursuit of physical education teaching, and always have the loving feelings of students' feelings in their hearts, which is

conducive to creating a warm sports learning atmosphere.

At the symposium on national Outstanding Teacher representatives on September 9, 2023, General Secretary Xi Jinping also encouraged teachers across the country to carry forward the spirit of educators, have ideals and beliefs, moral sentiments, dedication, benevolence, and the pursuit. It can be said that the spirit of educators with Chinese characteristics is the embodiment of teachers' educational feelings and the spiritual power to realize the power of education.

#### 3.3. Complete professional knowledge system

##### 3.3.1. Knowledge of early childhood education and physical education major

Preschool physical education teachers should master the rules, characteristics and individual differences of children's physical and mental development, be familiar with the basic process and requirements of kindergarten work, and know the methods to solve children's routine problems and special problems and other early childhood education knowledge. At the same time, the kindergarten physical education teachers also need to have rich sports professional knowledge, such as basket, row, foot sports professional knowledge and school sports, sports training, sports psychology knowledge, can investigate children's age, physical and mental differences, such as sports teaching plan, master children's sports safety and sports emergency knowledge, have the ability to formulate preventive measures and emergency treatment plan.

##### 3.3.2. General education knowledge

In order to expand children's vision and mobilize children's learning enthusiasm, preschool teachers should also master a wealth of general knowledge, such as daily life knowledge, social behavior, natural science knowledge, humanities and social science knowledge, art appreciation, and construct a compound knowledge system [2] the learning of knowledge should not only stay on the surface, but also expand the breadth and depth of knowledge. Only in this way can we help children adapt to the kindergarten life well and lead to their healthy development.

#### 3.4. Comprehensive professional skills

3.4.1. Communication and cooperation ability  
Physical education teachers should have good communication skills, be able to effectively

communicate with children, parents and colleagues, promote cooperation and understanding, and exercise children's teamwork and self-resistance ability through physical education activities. At the same time, kindergarten physical education teachers should also have good teamwork ability, and cooperate with other teachers and educators to jointly promote the all-round development of children and promote the realization of the comprehensive school education goal.

#### 3.4.2. Organization and management ability of sports

Kindergarten physical education teachers should have the ability to organize children's physical education activities, effectively organize classroom teaching, reasonably arrange time, ensure the smooth teaching progress, and give full play to the value of physical education in promoting the healthy and comprehensive development of children. In addition, kindergarten physical education teachers should have the ability to engage in school sports meetings, sports competitions and students' fun sports activities.

#### 3.4.3. Design of PE class

Kindergarten physical education teachers need to consider the teaching objectives, teaching plan, regional climate, teaching environment, students' age, interest, psychological and physical quality, and design the appropriate physical education teaching content and form. In physical education class, we should understand and respect the individual differences of each child, and the differentiated teaching strategies are adopted to meet the actual needs of each child. Combined with diversified sports programs, we focus on teamwork and personal development, ensure the interesting and challenging course, and pay attention to the safety and health of students.

#### 3.5. Creation of teaching environment and teaching innovation

The outdoor physical education teaching environment is the most easily variable and uncontrollable. In the case of relatively few teaching facilities and teaching resources, the creation of appropriate conditions to solve teaching problems, it requires physical education teachers to have profound professional skills understanding, comprehensive professional knowledge,

understanding of students' characteristics and needs, flexible selection of teaching content and teaching methods. Children's understanding and physical strength are the weakest in the student group. To create a suitable sports learning environment for children and give children the support they need, such as the creation of fun basketball teaching environment, which stimulates children's interest and participation in sports, and is also very much in line with the characteristics and rules of children's cognition, it is a real teaching.

## 4. ANALYSIS OF THE FACTORS AFFECTING THE IMPROVEMENT OF THE PROFESSIONAL QUALITY OF KINDERGARTEN PE TEACHERS

4.1. the establishment standard of kindergarten teachers is tight, and the employment standard of existing physical education teachers is relatively low.

Some kindergartens have poor recruitment conditions to attract high-quality talents to stay on. At the same time, the establishment is limited, and the kindergarten needs to make up for the lack of physical education teachers to meet the teaching needs, and then use the form of contract substitute class to recruit substitute physical education teachers to fill. Compared with the established teachers, the salary of substitute teachers is greatly different, with low salary, low status, more class hours and no other additional subsidies. the assessment mechanism is different from that of formal teachers, which directly affect the working state of kindergarten physical education teachers.

4.2. Some kindergarten physical education teachers' training frequency is low, and the training content deviates from the actual needs. The preferential policy of front-line teachers issued by the government is less for kindergarten physical education teachers, which affects the improvement of the professional quality of kindergarten physical education teachers. Nowadays, the teacher training of preschool education has been paid attention to ideologically, but the pre-service training is mainly carried out by the education and correspondence education of ordinary universities before entry, so the kindergarten still lacks a complete and mature training



process. In addition, the content of physical education teacher training is not closely related to the personal needs of physical education teachers, it is too formalized, and the practical application value in the physical education practice is not high, so the enthusiasm of kindergarten physical education teachers to participate in the training is not high.

4.3. Kindergarten of financial support and poor sports facilities.

The quality of the teaching environment directly reflects the importance of the kindergarten to the physical education curriculum. Some kindergarten leaders do not pay attention to the school sports conditions are simple, facilities are backward, sports teachers can not normally carry out some decent sports teaching. With the passage of time, teachers' teaching enthusiasm is slowly worn out, there are arbitrary physical education curriculum design, perfunctory physical education curriculum teaching and other bad teaching phenomena.

4.4. Kindergarten managers should reduce children's sports activities for safety.

Sports take the body as a tool, so sports have risks such as confrontation, easy to get injured. If injured in PE class, PE teachers will take the risk of public opinion, and schools will become famous for it. In order to avoid the occurrence of dangerous situations, kindergartens arbitrarily cut the time of physical activity and reduce physical education. This makes the professional identity and sense of achievement of kindergarten physical education teachers very low, which seriously affects the improvement of physical education teachers' professional quality.

4.5. the reward and punishment system in kindergarten management is too simple and lacks substantial incentives for teachers.

The employee rewards set by some kindergarten management can not fundamentally affect the employees, so it has lost the role of the reward and punishment system. At the same time, some teachers in the editor, due to the lack of crisis awareness, content with the status quo, so the level of professional quality is not high.

4.6. Some teachers' professional ethics need to be strengthened.

The teacher is a candle to burn oneself, illuminate others, pay attention to dedication. Some physical education teachers do not have enough understanding of the basic professional ethics of kindergarten physical education teachers, can not do the professional ethics in the professional quality of teachers, casually in daily work, content with the status quo, ignore the comprehensive development of students, become a moth in the cause of kindergarten physical education.

## 5. COUNTERMEASURES TO IMPROVE THE PROFESSIONAL QUALITY OF KINDERGARTEN PHYSICAL EDUCATION TEACHERS

5.1. Improve the welfare treatment of kindergarten physical education teachers and optimize their social security system.

Kindergartens ensure that the salary level of physical education teachers matches with their responsibilities and workload, and provide more specific and comprehensive welfare benefits [3]. In terms of social security, ensure good working environment and resource support, provide necessary teaching equipment and materials to improve the work efficiency of teachers; provide health examination, mental health support and other health services, care about the physical and mental health of physical education teachers; improve the coverage and reimbursement ratio of medical insurance and endowment insurance, reduce the living burden of physical education teachers; establish physical education teachers to participate in the formulation and improvement of welfare policies; improve relevant laws and regulations, and improve the implementation of policy services by local governments.

5.2. the government will increase funding to improve preschool education and sports facilities.

The government has paid more attention to preschool education, but the funds are slightly insufficient, especially in the township areas. the government will increase funding to improve the preschool education and sports facilities, which will provide children with a safer, richer and more interesting sports environment.

Focus on the improvement of physical education teaching places and facilities in

kindergartens, Such as the playground, the playground, the fitness equipment area, etc., To meet the diverse sports needs of young children, Also to create a good working environment for teachers; Some sports venue facilities are updated, maintained and repaired, To ensure its safety and comfort, Meet the needs of children's physical education teaching; Investment in equipment used for sports safety, Such as safety pads, protective nets, etc., To ensure children's sports safety; Add greening, landscape design to beautify the playground and sports areas, Provide a pleasant place for children to exercise; the introduction of digital technology in the physical education teaching activities, Such as motion-monitoring devices or virtual-reality teaching tools, To improve the quality and interest of physical education teaching; Equipped with sports equipment suitable for young children, Such as small balls, plastic rope skipping, etc., Make the course more interesting and practical.

5.3. Pay attention to professional ethics and strictly recruit preschool education.

During the recruitment and internship to teachers, the school pays attention to the professional ethics of teachers to ensure the recruitment of teachers with high-level of professional ethics and improve the quality of early childhood education.

Kindergarten management should establish clear standards of professional ethics, It clearly stipulates the ethical norms and codes of conduct that teachers should follow in the process of education; Add a special professional ethics assessment link to the preschool education recruitment process, Ensure that recruiters have good professional ethics and ethics; In-depth interviews during the recruitment process, Combined with the actual case analysis, Assess the candidates' understanding of professional ethics and their ability to cope with complex situations; A background investigation of the candidates, Understanding of their past professional experiences and potential work-ethic issues, Ensure that the hired teachers have a good reputation; Establishment of a supervisory body or committee, Responsible for monitoring the professional ethics of teachers, Accept and deal with the reports of teacher ethics violations.

5.4. Strengthen the professional training of professional quality of pre-service and post-service kindergarten PE teachers.

Provide continuous professional training opportunities for physical education teachers, especially the tilt of rural teacher training policy. In pre-in-service training, design systematic pre-service training courses; guide new teachers to face various teaching scenarios and improve their ability to solve problems; allow experienced old teachers to provide individual guidance and help for new teachers; and make new teachers learn practical teaching skills and management experience by summarizing practice experience.

In the in-service training, Provide the latest developments covering new teaching concepts, curriculum design and evaluation methods, Training on the application of new equipment and information technology; Organize professional seminars, For sports professionals to share their experiences and best practices; In conjunction with the health clubs, Organize regular sports vocational skills training; Arrange for on-site observation, Let teachers learn from the successful experiences of other colleagues, Broaden the teaching ideas; Establish effective feedback mechanisms, Through peer evaluation, feedback from students' parents, Help teachers to understand their own advantages and space for improvement; Provide online training resources, Convenient for teachers to understand the latest educational ideas and methods; Regular professional ethics training emphasizes the professional ethics and professional responsibility of teachers, And make a continuous evaluation.

5.5. the kindergarten implements comprehensive teacher incentive and evaluation measures and pays attention to teachers' family life.

The comprehensive use of incentive evaluation and care measures can improve the quality of teachers' teaching. At the same time, paying attention to teachers' family life can increase teachers' professional happiness.

The management of kindergarten can reward teachers through competitive remuneration, their teaching performance, professional development and contribution, and stimulate work motivation; develop clear career

development path and provide promotion opportunities for teachers; hold regular teaching and research activities, strengthen cooperation and communication among teachers and enhance team cohesion; organize regular social activities to create a harmonious working atmosphere; provide flexible working hours, to adapt and balance the teachers' family and work needs; and the management pay attention to teachers' family care, establish care system, and provide necessary support, such as care service.

#### **REFERENCES**

[1] Gubai Ru. How to improve the professional ethics of kindergarten teachers [J].

Early childhood Education, 2020(25):49. Analysis of policy documents [J]. Educational observation, 2020, 9(12):101-103.

[2] Miaoqi Ye. Scientific view of children: the foundation of the professional quality of kindergarten teachers [J]. China Journal of Education, 2017(2):204-205.

[3] Hongyan Gong. Strategy for cultivating the professional quality of teachers in inclusive private kindergartens [J]. Master Online, 2021(7):4-5.

# Diversified Teaching Strategies of Animal Toxicology

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**Abstract:** The current teaching method of animal toxicology has prominent traditional characteristics, which cannot arouse students' interest and enthusiasm during the whole process of learning. Accordingly, the outcomes based on the traditional teaching strategy remain significant improvement. Thus, corresponding teaching reform is quite necessary, which requires the update of teaching concept, innovation of teaching methods, and application of new teaching mode to attract students' learning of interest, enhance the vividness of the course. Furthermore, more interactions should be introduced to shorten the distance between teachers and students, thereby promoting the teaching quality.

**Keywords:** Diversified teaching; Animal toxicology; Teaching strategies

## 1. INTRODUCTION

The development of animal toxicology is a new discipline derived from modern toxicology and veterinary pharmacology [1]. Theoretical, there's no significant difference between a toxin and a drug, the difference lies in the dosage. However, the emphasis and key contents of animal toxicology and veterinary pharmacology are extremely different [2]. Animal toxicology focuses more on the toxicity and the related toxicological mechanism, as well the strategies to realize detoxification [3]. To facilitate students' better understanding, more diversified teaching methods and strategies could be introduced, which could trigger students' initiative in learning.

## 2. CURRENT TEACHING SITUATION

As a bridge subject between animal clinical and basic discipline, animal toxicology is an important basic course for students majored in veterinary medicine, animal pharmacy, and animal food hygiene [4]. This course needs

multi-discipline accumulation such as veterinary pharmacology, biochemistry, veterinary pathology etc. Therefore, cross-disciplinary content leads to series of knowledge points, which are difficult to grasp. Moreover, the limited hours for this course is the another factor to affect students' learning performance [5]. Also, we have to mention that teachers often ignore students' learning foundation and thinking cognitive ability, and adopt the monotonous teaching mode for all students, which makes it difficult to cultivate students' divergent thinking. the way to evaluate the learning outcomes mainly rely on the test scores, neglecting the all-round development and the whole-process evaluation.

## 3. DIVERSIFIED TEACHING STRATEGIES

### 3.1 Questions-introduction to guide students' thinking

Heuristic teaching strategy is an effective way to guide students' initiative thinking. Teachers could set up suspense to introduce the new content from the learnt content and reveal the key points and difficulties of the current class. A good case in point, in the teaching of animal toxicology, put forward a question first at the beginning of the class: what is the relationship between the maximum non effective dose and the minimum effective dose? By strengthening the connection between veterinary pharmacology and animal toxicology, the bridge between concepts is established to arouse students' interest, so that they can keep in mind easily the confusing knowledge points unconsciously, rather than having to memorize them. In the next class, first of all, review the previous points and connect them with an interesting event, then move forward to the new knowledge. Similarly, the teacher put forward a valuable question to enlighten students think in their

ways. Through this method, the students' dialectical thinking mode is cultivated, and the students listen to the class with questions, so as to have a more comprehensive and profound understanding of the concept and experiment. These questions seem to be raised casually in class. In fact, they can only be done on the basis of a thorough understanding of the textbook. the students' various performances must also be fully considered in advance. the students who actively answer questions can activate the classroom atmosphere and mobilize the enthusiasm of the whole class. In this process, the questions raised should be moderate in difficulty and not too simple, but should enable students to answer correctly only after some thinking. Problems should not be too difficult or give students enough time to think. Otherwise, the students will be dumbfounded and have no confidence, and the teachers can only tell for themselves. In this way, the purpose of attracting students' interest cannot be achieved. the method of doubt setting is helpful for students to make use of old knowledge, facilitate the transition and systematization of old and new knowledge, flexibly connect old and new knowledge, consolidate and deepen existing knowledge and skills, and achieve the function of reviewing the old and learning the new. In this process, students participate in learning with an active attitude, change passive learning into learning, fully tap students' learning potential, improve students' logical thinking ability, and achieve twice the result with half the effort.

### **3.2 Online and offline combined teaching mode**

The use of modern education and information technology to optimize teaching and learning through the development, utilization and evaluation of teaching and learning processes and resources. Traditional teaching methods are combined with modern educational technology to give full play to their respective advantages, enabling the integration of online and offline teaching. First, the teacher should optimize pre-course teaching video resources to enhance the efficiency of students' pre-course self-study. Teachers upload PPT courseware, micro-videos, learning materials, etc. on the online platform before class to urge students to study before class, and try to solve their doubts on their own, and cultivate

students' independent learning ability.

### **3.3 Flipped classroom**

The teacher carefully design classroom teaching sessions and do a good job of flipping the classroom teaching context. Use multimedia as the carrier to present the content of the lecture, and at the same time flexibly use the functional modules of online platform. For the concepts and phenomena that are difficult to understand, use the way of playing videos to stimulate learning interest, help students quickly understand and deepen their memory. In the middle of the lesson, a small amount of time is used to carry out the online classroom test, so that teachers can understand the students' mastery of the important and difficult points in a timely manner. the online platform is able to collect students' participation and points earned in the accompanying exercises, and analyze students' mistakes, scoring ranges, problems, and so on. Teachers can combine the data from online platform to understand students' pre-course preparation and classroom answers, analyze easy-to-answer questions in a timely manner, answer students' questions efficiently, help students internalize the relevant knowledge in the classroom, cultivate their higher-order thinking ability, broaden the breadth and depth of their knowledge of toxicology, guide them to combine theoretical knowledge with practice, and improve their ability to apply their knowledge.

### **3.4 Theme-based presentation**

The teacher could fully adopt online-offline blended flipped classroom to mobilize students' initiative and independent learning ability. the whole learning process includes pre-study, online learning (10-15 minutes of thematic videos), offline learning (in-depth discussion and summary of online learning), and post-course extension (which can be completed on the online platform). the whole process of assessment is carried out through problem-guidance and implementation of the concept of result-orientation, so as to cultivate high-quality talents with a solid foundation in all aspects of knowledge, ability and quality. Furthermore, during the process of offline learning, the teachers could provide several theme-based presentation topics for students or the students could select the topic of interest related to animal toxicology to make a

wonderful and sound powerpoint to give theme-based presentation. Then other students could put forward questions and communicate with the group members, followed by the conclusion and evaluation as well as the extension from the teacher.

The teaching reform has higher requirements for animal toxicology teaching, that is, to strengthen the communication and interaction between teachers, students and students. In the actual animal toxicology teaching activities, teachers should organize students to think and discuss, so as to accumulate richer theoretical knowledge for students. Organizing students to discuss animal toxicology issues not only cultivates students' spirit of cooperation, but also improves students' sense of teamwork. the teacher can tell the process of poison absorption, divide the whole class into several groups, let the students discuss relevant issues, and ask each group member to share the conclusions of this group with everyone. After the discussion, the teacher should summarize the conclusions of each group and let the students know that the process of poison absorption is divided into two stages. the first is the process of poison passing through the skin. Secondly, poisons enter the epidermis and dermis and are absorbed into the blood. It is worth noting that when forming a group, teachers should, according to the students' knowledge level, intelligence status and learning ability, let the students carefully understand the process of cooperative learning, understand the significance of cooperative learning, clarify the group's learning tasks, correct the students' learning attitude, make the students seriously participate in group learning, and have the group leader lead the problem discussion and knowledge learning, It is helpful to improve students' cooperation ability. During this period, teachers should carefully observe the actual situation and learning progress of group learning to ensure that group learning is orderly. Through group study, cultivate the ability of cooperation and communication between teachers and students, and stimulate students' interest in learning animal toxicology. Improve students' autonomy in learning knowledge and improve the efficiency of animal toxicology teaching class.

### **3.5 Teach in line with the student's ability**

Teachers should actively guide students to learn knowledge, formulate different teaching methods according to students' existing knowledge level, and visualize and concretize theoretical knowledge with strong logic and abstraction. For example, in animal toxicology teaching class, teachers can rely on their rich knowledge to create humorous and interesting animal toxicology teaching situations, activate the teaching classroom atmosphere, and make students keep a pleasant and relaxed mood to learn theoretical knowledge. All the strategies aim to create high-quality teaching situations relaxed atmosphere for the classroom, and improve students' initiative and enthusiasm in learning knowledge. To design high-quality teaching situations, teachers should introduce different teaching methods, combine the characteristics of students' learning knowledge, and pay attention to the teaching contents and knowledge that students are interested in, so as to make the teaching situations more attractive and rich in content. the key to improve teaching quality is to strengthen the interaction between teachers and students and ensure a harmonious and good relationship between teachers and students. Teachers should maintain communication with students. When students encounter learning problems during teaching, students can actively ask teachers and have channels to ask teachers. Classes can establish communication groups or online platform to convey their ideas. Teachers should take the initiative to speak in these chat groups, understand students' learning at any time, interact more with students, and maintain harmonious exchanges with students. In traditional teaching, students can't solve problems immediately because they don't have teachers' guidance. They can write them down and ask teachers in the chat group afterwards to find solutions. the establishment of diversified communication channels between teachers and students can not only increase the communication between teachers and students, but also be an important channel for thought collision and knowledge sharing. For example, when students encounter problem they do not understand, they can send them to the chat group to ask. Other students express their views and everyone exchanges their views. Students who ask questions

cannot only increase their own ideas for solving problems, but also increase their knowledge. It is beneficial to the classroom teaching of animal toxicology.

#### 4. CONCLUSION

Animal toxicology is scientific and rigorous to a certain extent. Through the study of this subject, students can master relevant scientific theoretical knowledge. With the deepening of teaching reform, traditional classroom teaching can no longer meet the needs of students. Teachers should change traditional teaching strategies in time, encourage students to form learning groups, create teaching situations and stimulate students' interest in learning. In this paper, diversified teaching strategies were put forward and applied in the course of animal toxicology. Actually, there is no end to improving the classroom efficiency of teaching. Only by constantly exploring and implementing various effective teaching methods can we keep animal toxicology teaching attractive enough and guide students to seriously study the course. This is also the practical need to improve students' ability to analyze problems, solve problems and develop their intellectual potential.

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#### REFERENCES

- [1] Hoff B. Veterinary toxicology — basic and clinical principles. *Can Vet J.* 2015 Mar; 56(3):260.
- [2] Anadón A. Perspectives in veterinary pharmacology and toxicology. *Front Vet Sci.* 2016 Sep 13; 3:82. doi: 10.3389/fvets.2016.00082.
- [3] Borgert CJ, Fuentes C, Burgoon LD. Principles of dose-setting in toxicology studies: the importance of kinetics for ensuring human safety. *Arch Toxicol.* 2021 Dec; 95(12):3651-3664. doi: 10.1007/s00204-021-03155-4.
- [4] Gundert-Remy U, Barth H, Bürkle A, Degen GH, Landsiedel R. Toxicology: a discipline in need of academic anchoring--the point of view of the German Society of Toxicology. *Arch Toxicol.* 2015 Oct; 89(10):1881-93. doi: 10.1007/s00204-015-1577-7.
- [5] Dorman DC, Poppenga RH, Schoenfeld-Tacher RM. the current state of veterinary toxicology education at AAVMC member veterinary schools. *Vet Sci.* 2022 Nov 22; 9(12):652. doi: 10.3390/vetsci9120652.

# Research on Influence of Course Extension Training of Engineering Graphics on Specialized Courses Teaching

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**Abstract:** On the basis of traditional teaching, engineering graphics extension training further optimizes the teaching content and forms teaching modules, aiming at cultivating and developing students' spatial imagination ability and spatial conception ability. This paper mainly takes the students who participated in the engineering graphics extension training as the research object, and explores the influence of engineering graphics extension training on the importance of subsequent relevant theoretical and practical courses. The results show that the academic performance of both theoretical and practical courses has been improved through the study of engineering graphics extension training course. By comparing with the average score of the major, the mechanical design score of the theoretical course is increased by 18 points at most, component mapping integrated practice course design of the practical course is increased by 12 points at most, and the proportion of excellent is increased by 50%. It can be seen that the study of engineering graphics extension training can stimulate the enthusiasm and initiative of students, and also provide a theoretical basis for further optimizing the content of engineering graphics extension training.

**Key words:** Engineering graphics, Course extension training, Specialized courses, Mechanical major

## 1. INTRODUCTION

Engineering graphics is a major basic course for mechanical majors, and it is a course that studies the expression, communication and transmission of engineering and product information. On the basis of traditional teaching, engineering graphics extension training further optimizes the teaching content and forms teaching modules, aiming at

cultivating and developing students' spatial imagination ability and spatial conception ability. It is explored to integrate the CDIO engineering education concept into the course training of students, so as to cultivate students' engineering awareness, improve their engineering application ability, expand their innovative thinking, and lay a foundation for the subsequent study of professional theory and practice courses as well as future employment. At present, Yonghong Yu [1] has studied the teaching practice and course extension of "programming" course. Yu Xiaojing [2] conducted a study on course extension of engineering practice innovation projects, and discussed construction of course system and teaching method integrating "teaching and doing".

In this paper, the students who participated in engineering graphics extension training in grade 2018 are taken as research objects. It is explored that the influence of engineering graphics extension training on the importance of subsequent relevant theoretical and practical courses.

## 2. RESEARCH METHODS AND CONTENTS OF EXTENSION TRAINING

### 2.1 Course extension objectives

The target orientation of course extension is ability cultivation and skill cultivation.

The extension training of Engineering Graphics A is based on spatial thinking, studying the law of conversion between three-dimensional shapes and two-dimensional graphics. The characteristics of its spatial thinking are mainly reflected in taking orthographic drawings and spatial shapes as thinking objects, generating clear three-dimensional geometric shapes in the mind, and the transformation relationship between



three-dimensional shapes and two-dimensional planes according to the projection rule. Guide students to use engineering graphics knowledge in engineering practice to carry on reasonable conception, scientific analysis and correct expression of engineering problems [3].

The extension training of Engineering Graphics A2 is through the training of drawing expression of parts drawing and assembly drawing, and the practice of digital design basic course, so that students can develop and establish three-dimensional design concept on the basis of mastering traditional two-dimensional engineering drawing.

### 2.2 Contents of extension training

The content of extension training is innovative, advanced and challenging. Extension training in Engineering Graphics is distributed over two semesters in two courses, namely Engineering Graphics A and Engineering Graphics A2. Extension training content includes the following. On the one hand, the teaching system of the course is analyzed. In addition to the completion of the teaching content, the knowledge point is optimized and the in-depth development training is carried out in a modular form. For example, the analysis and drawing of the intersecting lines of complex forms, the training of Complex shape assembly imagination, and the training of intellectual thinking configuration. On the other hand, in combination with the needs of production practice, we use modules such as part drawing, assembly drawing and disassembly, three-dimensional modeling and assembly, and dimension marking training. On the basis of cultivating scale drawing skills, freehand drawing skills, two-dimensional and three-dimensional CAD skills, we can improve the difficulty, keep close to production practice, and cultivate engineering awareness.

### 2.3 Object of extension training

In this paper, 30 students who participated in the extension training from the class of 2018 are taken as the research object. the extension training students come from all classes in the same grade. According to the students' class activity, homework completion, spatial thinking and imagination ability, they are willing to participate in the extension training of engineering graphics course. On the

premise of improving their professional skills, 2-3 students are selected from each class, and about 30 students are selected from the whole grade. the selected students can actively respond to the teacher's teaching thinking in the class process.

### 2.4 Research methods of extension training

Taking the scores of these 30 students as samples, the changes in the average scores of Engineering Graphics A, Engineering Graphics A2, as well as the basic professional theoretical courses related to engineering graphics such as Mechanical Design, Mechanical Principles, and Fundamentals of Machinery Manufacturing Technology of students who only received one extension training in Engineering Graphics A and two extension training in Engineering Graphics A and A2 were tracked and statistically analyzed. Study the influence of course extension training on the importance of professional theory course achievement. Follow up the influence of course extension training on the results of courses design of Integrated Practice of Parts Surveying and Mapping, Mechanical Design, Mechanical Principles and Fundamentals of Machinery Manufacturing Technology, and Graduation Project. the quantitative assignment of grades is as follows. Excellent is 90 points, good is 80 points, medium is 70 points, pass is 60 points, fail is 50 points.

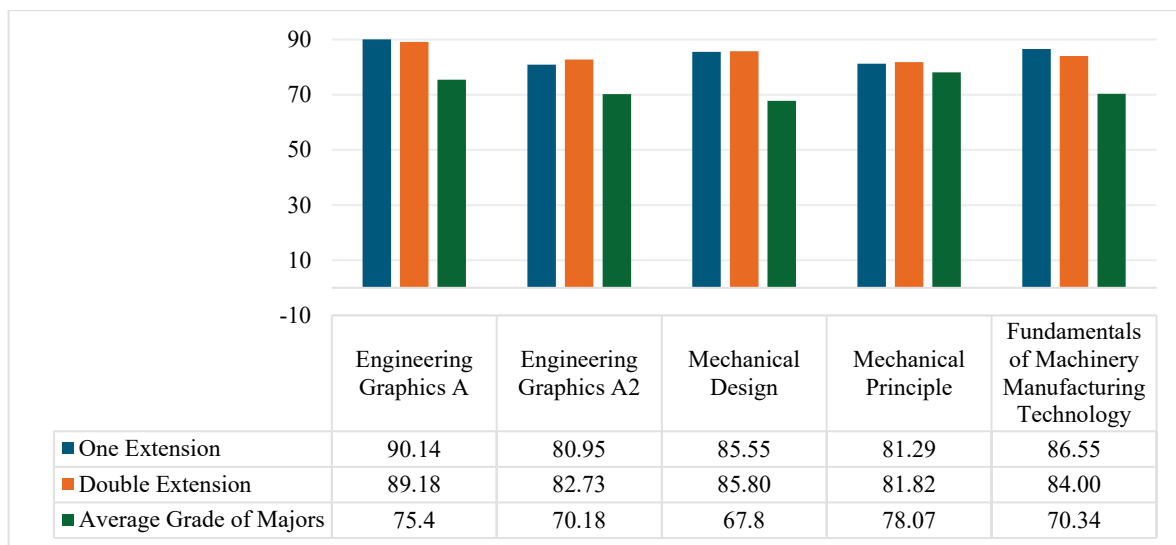
## 3. RESULTS AND ANALYSIS

### 3.1 Influence of extension training on professional theoretical courses

As can be seen from **Figure 1**, the scores of the students who participated in the course extension study were all higher than the major average. In addition, after one extension training and two extension training, the average score of this course and subsequent related specialized courses is more than 80 points, especially the average score of engineering graphics A is about 90 points. On the one hand, because the students voluntarily participate in the course development training, the learning initiative and thirst for knowledge is relatively high; On the other hand, because of the small class teaching, can carry out targeted tutoring teaching, greatly stimulate the students' interest in learning. the classroom teaching effect is good.

According to the analysis of the average scores of the students who have studied Engineering Graphics A and Engineering Graphics A2, the highest average scores of Engineering Graphics A are 90.14 and 89.18 respectively. the main reason is that the content of extension training is for this course, and it is completed in the semester of students' freshman year, which is the initial contact of students with professional courses. In addition, this course is also a course with strong

practical and spatial imagination, with specific problem-solving methods and problem-solving ideas, and students have strong interest in learning. the study of other relevant professional courses is completed in the semester after adapting to the university life, with many knowledge points and strong professional level. Students' understanding and mastery of knowledge points have declined.



**Figure 1.** influence of course extension training on the average score of relevant theoretical courses

Through the comparative analysis of the average scores of each course, we can see that the average scores of Engineering Graphics A have decreased slightly, but the decline is not large. the average scores of Engineering Graphics A2, Mechanical Design and Mechanical Principle have increased to varying degrees. the main reason is that these courses are learned in the first and second years, and have great relevance to extension training and good knowledge inheritance. the average score of Fundamentals of Machinery Manufacturing Technology has decreased slightly. the main reason is that the content of this course covers a wide range, including metal cutting machine tools, mechanical manufacturing technology and fixture design, etc., and this course is studied in the third semester, and the impact of extension training is relatively small.

### 3.2 Influence of course extension training on specialized practice courses

#### 3.2.1 Comparative analysis of average scores

of practical courses

The grades of practical courses are graded, which is quantified and analyzed in this paper. As can be seen from **Figure 2**, the scores of students participating in the course extension learning are all higher than the major average. In addition, after the course extension training of Engineering Graphics A and Engineering Graphics A2, the average score of the relevant practical courses, such as courses design of Integrated Practice of Parts Surveying and Mapping, Mechanical Design, Mechanical Principle and Fundamentals of Machinery Manufacturing Technology and graduation project, is above 70 points. Through comparative analysis, it is concluded that the course extension training of Engineering Graphics A2 has a great impact on the integrated practice of parts and graduation project, and the average score of students can reach more than 80 points. While the average score of Mechanical Design, Mechanical Principles and Fundamentals of Machinery

Manufacturing Technology is not affected. These practical courses should not only have a high hands-on ability, but also have enough

professional literacy, as well as the ability to independently analyze and solve problems.

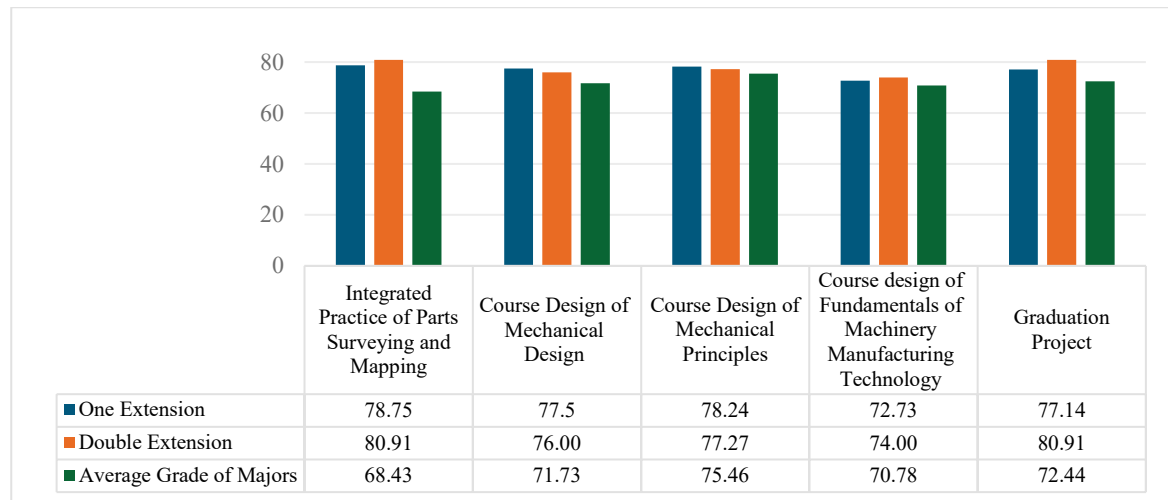


Figure 2. Influence of course extension training on average score of relevant practical courses

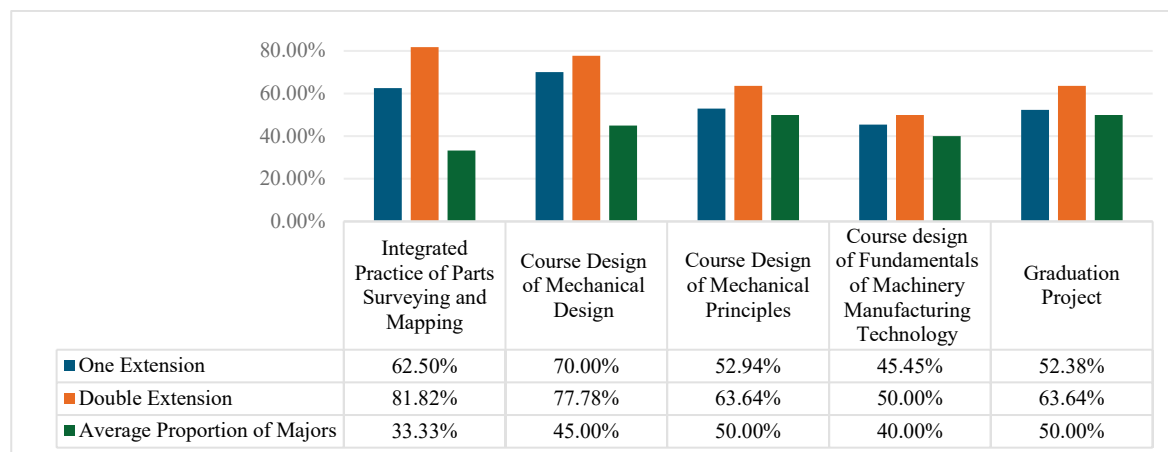


Figure 3. Influence of course extension training on excellent proportion of relevant practical courses

### 3.2.2 Comparative analysis of the excellent proportion of practical courses

In this paper, the practical course scores of students participating in the course extension training are counted. As can be seen from **Figure 3**, the proportion of students participating in curriculum extension learning with excellent grades is higher than the average proportion of majors. Moreover, students who participate in two courses are more excellent than those who participate in one course. Among them, the proportion of good comprehensive practice of parts increased significantly from 62.50% to 81.82%. the main reason is that the comprehensive practice of parts enables students to master the relevant contents of

national standards and dimensional accuracy, shape and position accuracy, strengthens the basic skills training of students in drawing engineering drawings, enables students to correctly select parts schemes and reasonable layout, and proficiency in using CAD software to draw two-dimensional engineering drawings, three-dimensional configuration and virtual assembly design. the course design is closely combined with the extension training content of Engineering Graphics A2, and the learning effect is remarkable.

### 4. CONCLUSION

On the basis of traditional teaching, engineering graphics extension training further optimizes the teaching content and

forms teaching modules, aiming at cultivating and developing students' spatial imagination ability and spatial conception ability. In this paper, it is explored that the influence of only one extension training in Engineering Graphics A and two extension training in Engineering Graphics A and A2 on students' scores in Engineering Graphics A, Engineering Graphics A2, and professional theoretical and practical courses related to Engineering Graphics. The results show that the academic performance of both theoretical and practical courses has been improved through the study of Engineering Graphics course. By comparing with the average score of the major, the mechanical design score of the theoretical course increased by 18 points at most, and the design of the parts surveying and mapping course of the practical course increased by 12 points at most, and the excellent ratio increased by 50%. It can be seen that the study of Engineering Graphics course extension training can stimulate the enthusiasm and initiative of students, and also provide a basis for further optimizing the content of Engineering Graphics course extension training.

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#### **REFERENCES**

- [1] Yonghong Yu. Research on Teaching Practice and Course Extension of "Programming" Course [J]. *Jiangsu Science and Technology Information*, 2021, 38(24):67-69.
- [2] Xiaojing Yu. Research on Course Extension of Engineering Practice Innovation Project [J]. *Course Education Research*, 2018, (10):251-253.
- [3] Yan Zhang, Qinghua LI, Chunshan He, Liai Pan. Research on the application of Online and Offline Mixed Teaching Mode in the Construction of "golden Course" in Engineering Graphics [J]. *Journal of Jilin Normal University of Engineering Technology*, 201, 37(12):42-44.

# The Classic Nature Of "Superfluous Words"

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**Abstract:** Qu Qiubai's "Superfluous Words" is regarded as a unique classic in Chinese history and intellectual spiritual history. This paper will discuss the value of "Superfluous Words" from two aspects of its creation motivation and creator identity.

**Key Words:** Qu Qiubai; Superfluous Words'; Creative Motivation; Creator Identity

## 1. CREATIVE MOTIVATION

About Qu Qiubai's revolutionary thought and literature research, especially the "Superfluous Words" written before his heroic death, after nearly a hundred years of ups and downs, there are still many different opinions in the academic circle. Such as Chen Tiejian's brilliant theory, Wang Weili and Du Wenjun's main tendency error theory, etc., among them, I agree with MAO Dun's confession theory and Liu Lian's review theory. "Superfluous Words" is a confession from the depths of the heart of a Communist Party member who realized that his "incompetence" had brought great losses to the Chinese revolution, and is a statement of a Communist Party member's strict self-autopsy to the party.

Before the preface, the author wrote: "Know me, that my heart is worried; What can I ask of those who do not know me?" the understanding of this sentence will directly affect the analysis of the creative motivation of "Superfluous Words". the mainstream of academic opinion should be understood as: those who understand me think that I wrote this article to worry about the fate of the party; Those who do not understand me think that since I wrote this article is harmful to the Party and to myself, why on earth? I think it can also be understood from this perspective: those who understand me understand my pain in recent years, especially the sadness in my heart in recent years; Those who do not understand me will say that I go through the twists and turns of revolution, politics, and even death, why? What am I really for? Based on this understanding, I prefer "confession

theory" and "review theory".

Throughout Qu Qiubai's youth and youth, the atmosphere of literati and gentlemen is the existence that permeates his inner spirit, and behind his assumption of the main leadership position of the Communist Party, there is a feeling of anxiety, as he believes in the later period that this is just a "historical misunderstanding". During his work, he often mentioned the metaphor of "dogs ploughing cows" and the ideas expressed in "Superfluous Words" actually have a relationship with each other. When the trend of history and the objective form of revolutionary struggle pushed Qu Qiubai, who had no intention in politics or even avoided the world, to the forefront of the Times, and he was unable to bear it because of his inherent deficiency, pain came into being. the reason why the author wrote "Superfluous Words" before he died is not only that he made his long-buried thoughts and emotions resorted and examined, but also that he wanted to expose his true heart to the naked, so that the Party, the revolutionary comrades, and the world could have a comprehensive understanding and an accurate evaluation of him. Perhaps the former is more important than the positive or negative arguments that may arise. "Superfluous Words" naturally can not be understood as his excuse, after all, "I do not fear blame, blame, I fear admiration. " Through "Superfluous Words", Qu Qiubai is concerned about the cause of the party, miss the sincere feelings of comrades and comrades, seriously summed up his life, strictly analyzed himself, put his soul, naked under the microscope, calm and selfless self-judgment, but also left the posterity to evaluate the merits and faults, "willing to be the most open judgment of history. "[1] "Superfluous Words" from beginning to end, mercilessly firing at the dark side of their own soul, strict and somewhat harsh self-dissection, also provides a lesson to all Communists and intellectuals.

## 2. IDENTITY OF CREATOR

As for the identity of Qu Qiubai, I think he is first a "gentleman" and second is a "revolutionary", just as he evaluates himself: a fragile dual figure. Through Qu Qiubai's self-dissection in "Superfluous Words", we can get a glimpse of the relationship between intellectuals and revolution at that time.

In the book, he bluntly said: "My mother would rather commit suicide so that our brothers can continue to study, and when my mother committed suicide because of poverty, there was often no rice to cook in the family, we also used a servant, we never washed clothes by hand, and cooked a meal. " Until that time, in order to wear the long gown, after the death of his mother, there were still more than 40 yuan of tailors' debts, which had to be paid with the remnants of wood. My sense of chivalry - even if it is deeply latent and diffused, and not easily perceptible - has never been removed. " the contradiction of the intellectuals represented by Qu Qiubai makes "Superfluous Words" not only a simple personal monologue, but also provides the truth and complexity of an era and a group of people to the later generations. [2]

In essence, Qu Qiubai was a Chinese spiritual gentleman and revolutionary literati who devoted himself to the proletarian revolution in the 20th century. But as a gentleman (intellectual), this also determined the difficulty of his class revolution. When the intellectuals who possessed the wealth of traditional spiritual civilization were engaged in the revolution, they could not abandon the spiritual wealth they possessed. They could not break with the traditional concept while breaking with their class, and they were doomed to carry out the ideological revolution which was far deeper, more painful and more arduous than that of ordinary people while devoting themselves to the political revolution. In this way, they can purge their inner sense of chivalry and adapt to the needs of the revolution. " This difficulty also reflects the inherent deficiency of intellectuals in participating in and even leading the revolution. Although at the very beginning of their dedication to the revolution, the Chinese intellectual revolutionaries already had a general understanding of Marxism-Leninism from books (and also from the successful

experience of the October Revolution in the Soviet Union), and a rough understanding of the nature, object, motive force and future of the new democratic revolution in China, there was also no lack of enthusiasm and struggle for the Chinese revolution. However, because they had not had time to withstand the actual exercise and test of blood and heat at that time, because they did not fully understand the specific national conditions of China at that time, and they grew up in China and were raised by Chinese traditional culture, they had some characteristics of traditional Chinese literati in their feelings, ways of thinking, values and behavior patterns. Although they could rationally understand and appreciate the Chinese revolution at that time, and they could also realize that "the revolution is not a dinner party, it is not an essay, it is not a painting, it is not an embroidery, it is not that elegant, that calm, that polite", but in the emotional, in the ability to successfully practice and lead the Chinese revolution, they were far from enough. It is precisely in "Superfluous Words" that Qu Qiubai reveals the hidden contradictions and perplexities in the spirit of a generation of intellectuals through his frank analysis of his own literati habits and gentleman consciousness, as well as his contradictory analysis in the face of revolutionary ideas. However, compared with other intellectuals at the same time, Qu Qiubai's transformation and analysis of his own spirit are obviously more. Zhu Ziqing once said: I dissected myself to see that I was not worthy of the revolution. I have lived thirty years among the petty bourgeoisie; my sentiments, tastes, thoughts, ethics, and manners of conduct are all petty bourgeois; without the petty bourgeoisie, I have neither blood nor flesh. " This is the choice made by most intellectuals in the face of mental contradictions. However, in this class struggle, Qu Qiubai tried his best to wash away the petty bourgeois atmosphere and transform himself into a member of the proletariat. This is what makes Qu Qiubai different from other intellectuals.

After seeing that he could not overcome the feelings of the petty bourgeoisie, Zhu Ziqing found that he was "not worthy of revolution", and Qu Qiubai wanted revolution, but "because I could not overcome my gentleman consciousness, I finally could not become a

basic revolutionary", the conclusion of these two goals is the same. It also reflects the tragic development and growth path of the revolutionary intellectuals in this era under the dual influence and stimulation of "their own gentleman consciousness" and "alien" proletarian consciousness, and also reflects the confusion and pain of Chinese intellectuals in this special spirit of the Times.

Qu Qiubai wrote in "Superfluous Words" that becoming a leader of the Communist Party of China was simply a "historical misunderstanding", that the needs of the objective situation forced him to engage in things he was unfamiliar with and not good at, and did not or did not fully give him sufficient opportunities to exert his talents, which is how Qu Qiubai defined himself. In the second half of the journey of Qu Qiubai's life, it is indeed not difficult to find the pain and suffering brought to him by this identity, and he is reluctant to think about the problems in the party, because after thinking, there will be doubts, and he is no longer lazy to think, but only to admit mistakes and obey. This is the approach he took in the face of spiritual contradictions in the later years, but history also tells us that this attitude is not advisable. Qu Qiubai reached this understanding through the summary of his own life, which is the brilliance of his thought, and he warned the youth in "Superfluous Words": "Don't follow my example. " It means not to retain "alien"

ideologies, not to be "dualistic figures", but to be truly and thoroughly proletarian fighters.

This is not only a reflection and repentance for their failure, but also a hope for the spiritual growth direction of many young people. Therefore, the classic of "Superfluous Words" is not only Qu Qiubai's inner statement and confession reflection on his life, but more importantly, he reveals the spiritual confusion and contradictions of the intellectuals of that era through his strict anatomy, and still loyally cares for the Party and the revolutionary cause at the end of his life. And to countless intellectuals placed ardent hope. [3]

## REFERENCES

- [1] Li Zhonghan, Chen Jihong. the historical conditions, Foundation and Unique Contribution of the Formation of Marxist moral View -- with Qu Qiubai as the analysis center [J]. Journal of Henan Normal University (Philosophy and Social Sciences Edition), 2024, 51(02):84-90.
- [2] Chen Tiejian. Qu Qiubai from the Philosophical Perspective: Reading Qu Qiubai and Cross-cultural Modernity and others [J]. Historical monthly, 2021(12):117-122.
- [3] Li Qi. From "Those who don't know Me" to "Those who Know Me"-- Who is Qu Qiubai's Superfluous Words written for [J]. Centennial tide, 2013(12):37-44.

# Research on Marketing Strategies for Cultural and Creative Products in the New Media Era

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**Abstract:** In the digital age, cultural and creative products have gained unprecedented exposure and promotion opportunities through new media platforms. This paper aims to explore new media marketing strategies for cultural and creative products, providing theoretical perspectives and original analysis, summarizing effective strategies and methods to offer reference and guidance for market promotion.

**Keywords:** Marketing Strategies; Content Marketing; Social Media Marketing; Big Data Marketing

## 1. THEORETICAL FOUNDATIONS OF NEW MEDIA MARKETING

### 1.1 Definition and Characteristics of New Media

New media refers to emerging communication media based on internet technology, characterized by interactivity, immediacy, and shareability. Compared to traditional media, new media emphasizes user participation and interaction, enabling rapid dissemination of information and widespread coverage.

1.2 Basic Theories of New Media Marketing  
Core theories of new media marketing include content marketing, social media marketing, and big data marketing. Content marketing focuses on attracting and retaining target audiences through high-quality content; social media marketing leverages the interactivity and social networks of platforms for brand promotion; big data marketing uses data analysis and user profiling to achieve precise marketing and personalized recommendations.

## 2. NEW MEDIA MARKETING STRATEGIES FOR CULTURAL AND CREATIVE PRODUCTS

### 2.1 Content Marketing Strategy

Content marketing is a vital strategy for

promoting cultural and creative products through new media platforms. This strategy focuses on creating, distributing, and sharing valuable, relevant, and consistent content to attract and engage a clearly defined audience, ultimately driving profitable customer actions. Below are detailed content marketing strategies tailored for cultural and creative products:

#### 2.1.1 Original Content Creation

Creating compelling stories about the brand and its products can deeply resonate with audiences. Storytelling can involve the history of the product, the inspiration behind its creation, or the cultural significance it holds. These narratives help build an emotional connection with the audience, making the products more relatable and memorable.

High-quality visual content, such as photographs, illustrations, and videos, can effectively capture the essence of cultural and creative products. Visuals should be aesthetically pleasing and reflective of the brand's identity. For example, showcasing the intricate details of a handcrafted item or the vibrant colors of a traditional artwork can highlight the uniqueness and craftsmanship of the product.

Providing educational content related to the cultural aspects of the products can enhance audience engagement. This could include blog posts, articles, or videos that explain the cultural heritage, traditional techniques, or historical context associated with the products. Educating the audience not only adds value but also positions the brand as an authority in the cultural domain.

#### 2.1.2 User-Generated Content (UGC)

Encouraging customers to share their experiences and reviews of the products can build trust and credibility. Positive testimonials and reviews act as social proof,



influencing potential buyers' purchasing decisions. Brands can incentivize customers to leave reviews by offering discounts or running review-based contests.

Organizing social media challenges where users create and share content related to the products can significantly increase engagement and brand visibility. For instance, a brand could launch a challenge where customers showcase how they use or display the cultural and creative products in their daily lives.

Highlighting and sharing customer stories on the brand's platforms can create a sense of community and belonging. This can be done through blog posts, social media shoutouts, or dedicated sections on the brand's website. Featuring customer stories not only appreciates loyal customers but also inspires others to engage with the brand.

## 2.2 Social Media Marketing Strategy

Social media marketing is an essential strategy for promoting cultural and creative products, leveraging the interactive and viral nature of social media platforms to enhance brand visibility and engagement. Below are detailed social media marketing strategies tailored for cultural and creative products:

### 2.2.1 Selection of Social Platforms

Choosing suitable social media platforms based on the characteristics of the target audience, such as WeChat, Weibo, TikTok, ensures that marketing content reaches the target users.

WeChat has a broad user base and is great for visually-driven content. Focus on high-quality images and short videos. Use Stories and Reels for behind-the-scenes content and timely updates.

Weibo is ideal for real-time updates and engaging in trending conversations. Share timely updates, participate in trending hashtags, and engage in conversations.

TikTok appeals to younger audiences and is excellent for short, creative videos. Create engaging, short-form videos that are entertaining or educational.

### 2.2.2 Collaboration with Key Opinion Leaders (KOLs)

Collaborating with KOLs can quickly enhance brand awareness and credibility through their influence and appeal. KOLs can promote cultural and creative products through

recommendations, reviews, and live streaming. Identify KOLs who align with brand values and have a following that matches target audience. These KOLs can range from micro-influencers with a highly engaged niche audience to macro-influencers with a broader reach.

Partner with KOLs to create authentic content that resonates with their followers. This could include product reviews, unboxings, tutorials, or lifestyle posts that incorporate your products in a natural way.

Consider having KOLs take over your social media account for a day or collaborate on specific campaigns. This can provide fresh content and attract the KOL's followers to the brand.

## 2.3 Big Data Marketing Strategy

Big data marketing leverages data analysis to understand consumer behavior and preferences, enabling brands to create personalized and effective marketing strategies. For cultural and creative products, big data can provide insights into target audiences, optimize marketing campaigns, and enhance customer experiences. Here are detailed strategies:

### 2.3.1 Collection and Analysis of User Data

Collect data from various touchpoints such as website interactions, social media engagement, email subscriptions, and purchase history. Key data points include demographic information, Behavioral data and Transactional data. Collect industry and market data to understand broader trends and competitor strategies. Sources include market research reports, industry publications, and competitor analysis tools.

Use predictive analytics to forecast future behaviors and trends. Predicting which customers are likely to purchase specific products. Identifying customers at risk of leaving and implementing retention strategies. Suggesting products based on past behaviors and preferences.

### 2.3.2 Personalized Recommendations

Deliver personalized content to different customer segments. Customize website content based on user behavior and preferences. This includes personalized product recommendations, dynamic landing pages, and tailored content suggestions.

Use data insights to create targeted advertising

campaigns. Target ads based on the geographical location of audience, relevant to cultural and creative products with local significance.

Implement dynamic pricing strategies based on demand, customer behavior, and market trends. This involves adjusting prices in real-time to maximize sales and profitability.

### 3. CASE STUDIES

#### 3.1 Palace Museum Cultural and Creative Products

The Palace Museum has achieved remarkable success in promoting cultural and creative products through new media platforms.

The Palace Museum produces exquisite short videos and graphic introductions to showcase the unique charm and cultural connotations of its products, attracting significant user attention and purchases. The Palace Museum actively uses social media platforms like WeChat and Weibo to interact with users, promptly responding to feedback and suggestions, enhancing user engagement and loyalty. By analyzing user data, the Palace Museum understands users' interests and preferences, enabling personalized recommendations and targeted advertising, improving marketing effectiveness.

#### 3.2 NetEase Yanxuan

NetEase Yanxuan, a well-known e-commerce platform, successfully promotes cultural and creative products through new media marketing strategies.

NetEase Yanxuan attracts user attention and purchases through various forms of content marketing, such as brand stories, product reviews, and user sharing. NetEase Yanxuan collaborates with multiple KOLs, quickly boosting the popularity and sales of cultural and creative products through their recommendations and sharing. By leveraging big data analysis, NetEase Yanxuan accurately identifies target users, offering personalized recommendations and targeted advertising, increasing conversion rates and user satisfaction.

### 4. CONCLUSION

From the exploration of new media marketing strategies for cultural and creative products

and the analysis of case studies, we can conclude the following:

Content marketing is a powerful tool for cultural and creative products, helping to tell the brand's story, engage the audience, and build a loyal customer base. By leveraging original content creation, user-generated content, interactive experiences, collaborations, and strategic distribution, brands can effectively promote their products and connect with their audience in meaningful ways.

Social media marketing offers vast opportunities for promoting cultural and creative products. By selecting the right platforms, creating high-quality and engaging content, interacting with audience, collaborating with influencers, and continuously optimizing strategy.

Big data marketing offers powerful tools for understanding and engaging with customers in the cultural and creative products sector. By collecting and analyzing data, brands can create personalized marketing strategies, optimize campaigns, and enhance customer experiences. Leveraging big data enables more precise targeting, better customer insights, and ultimately, more effective marketing efforts.

In the future, as new media technology continues to evolve, the marketing strategies for cultural and creative products will also innovate and optimize, providing greater support for the development of the cultural and creative industry.

### REFERENCES

- [1] Yang Miao. Research on Communication Strategies for Cultural and Creative Products from the New Media Perspective [J]. *Journal of News Research*, 2023(7):242-244.
- [2] JI Nian; XU Lu; REN Fan; NIU Heqing; ZHOU Ying. Marketing and innovation of creative products from the perspective of new media [J]. *the Journal of Fashion Design and Engineering*, 2022(03):1-5.
- [3] Zou Wenbing; Chen Yan. Research on Short Video Marketing Monetization Strategy in the Context of New Media Context [J]. *Modern Advertising*, 2022(14):17-24, 61.

# Exploration and Practice of Hybrid Teaching of Inorganic Chemistry in Higher Vocational Education Based on Intelligent Classroom

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**Abstract:** This article introduces the teaching status and characteristics of inorganic chemistry courses in higher vocational pharmacy and traditional Chinese medicine majors, and explores and practices teaching reform based on the advantages of intelligent classroom platforms. Through practice, the advantages of blended learning reform based on intelligent classroom have been discovered. the new teaching method has a more obvious teaching effect, and students have a stronger interest in learning. the learning of knowledge is no longer influenced by time, space, and specific textbooks. Through this approach, the evaluation results are also more scientific, professional, and fair

**Keywords:** Intelligent Classroom; Inorganic Chemistry; Blended Teaching

## 1. INTRODUCTION

With the rapid development of information technology, the field of education has also undergone profound changes. "Internet+education" has been successfully applied to the traditional theoretical classroom and has become a new emerging hybrid teaching method. the Guiding Opinions of the Ministry of Education on Further Promoting the Informatization Development of Vocational Education and other related documents have pointed out the direction for further promoting and implementing the informatization development of vocational education. In this era, how to apply information technology to truly break through the constraints of time and geography in teaching, achieve the sharing of educational resources, and build a real-time and mobile learning mode for students is a hot topic in current education reform. the inorganic chemistry course has the characteristics of complex content, multiple knowledge points,

obscure and difficult to understand basic theoretical content, multiple memorization contents in the chemistry section, and strong experimentation. Therefore, how to use information technology to construct an online and offline hybrid teaching mode with the characteristics of inorganic chemistry course learning and practice it is a key step to adapt to the needs of the times and promote the transformation of teaching mode from "teacher centered" to "student centered".

## 2. THE TEACHING STATUS OF INORGANIC CHEMISTRY COURSES IN OUR SCHOOL

The inorganic chemistry course in our school is called Medical Basic Chemistry 1, and together with organic chemistry, it is referred to as Medical Basic Chemistry. It is a compulsory course in the talent training program for pharmacy and traditional Chinese medicine majors. Established in the first semester of university, it not only connects with high school chemistry content, but also lays a solid foundation for subsequent courses such as Organic Chemistry, Pharmaceutical Chemistry, and Pharmacy. It is an important path for cultivating students to engage in drug testing, drug production, and other works. However, our school's inorganic chemistry course has the characteristics of insufficient class hours and weak chemical foundation among students. Students generally show low interest, weak knowledge mastery, unsatisfactory final grades, and forgetting knowledge when studying subsequent courses in the process of inorganic chemistry learning. Therefore, if traditional teaching methods continue to be used, it will weaken students' ability to learn independently, think independently, and practice, which is not conducive to achieving the training objectives

[1-2]. Therefore, how to choose one or more teaching methods that are suitable for students' learning characteristics and promote the cultivation of their independent thinking ability is an urgent problem to be solved.

### **3. THE ADVANTAGES OF BLENDED LEARNING BASED ON INTELLIGENT CLASSROOM**

Intelligent Classroom is an online learning platform commonly used by teachers and students in our school, with accounts linked to enterprise WeChat. It includes roll call, instant Q&A, brainstorming, in class quizzes, after-school quizzes, voting questionnaires, Q&A discussions, and other content. The hybrid teaching of inorganic chemistry based on intelligent classroom is not an independent face-to-face course or online course, nor is it a simple addition of the two. But it is a comprehensive design and systematic analysis that combines the characteristics of inorganic chemistry courses, the needs of pharmaceutical students, and the learning characteristics of vocational college students. By leveraging the flexibility of online teaching and the timeliness of offline learning, we aim to achieve a 1+1>2 effect, fully leveraging the advantages of each component to increase students' interest, efficiency, and effectiveness in learning. In the context of limited class hours in inorganic chemistry, fully utilize the advantages of online platforms for learning, utilize intelligent classroom platforms, effectively tap into the learning potential of students, and fully tap into their learning initiative. The intelligent classroom has both mobile and computer terminals, and can be accessed through enterprise WeChat or WeChat app without the need to download other software. It has low requirements for students to use learning devices. Therefore, the application of intelligent classroom platforms for blended teaching reform in inorganic chemistry classrooms has extremely high application value.

### **4. SPECIFIC IMPLEMENTATION MEASURES**

The application of intelligent classroom teaching reform has put forward higher requirements for the abilities of teachers. Teachers can log in to the intelligent

classroom in real time and upload materials (including text, images, videos, links, etc.). It is possible to establish a knowledge tree for course learning in advance, so that students can learn more systematically. The early establishment of question banks is essential for the diversified use of intelligent classroom. The types of questions in intelligent classroom is very diverse, including multiple-choice questions, multiple-choice questions, fill in the blank questions, discussion questions, etc., and the questions support uploading pictures and selecting keywords for answers. By doing these things well, the start of the intelligent classroom blended education reform is considered complete.

Publish learning tasks in the intelligent classroom before class. Provide some simple knowledge in inorganic chemistry to students through intelligent classroom platforms in the form of text, pictures, or micro lesson videos. Simultaneously set up speech and discussion. In the classroom, there is no longer a teacher centered teaching approach, but a shift in role centeredness. Questions and discussions are conducted based on pre class questions raised by students, and teachers provide appropriate guidance to enhance student initiative and improve learning interest. Using the intelligent classroom platform to post chemical professional questions, such as in the chapter on learning precipitation dissolution equilibrium, a discussion question is posted: How to remove kidney stones using chemical methods? [3] Students can express their ideas through the intelligent classroom platform, or directly express themselves face-to-face in the classroom, greatly saving class discussion time and avoiding the problem of teachers having difficulty obtaining students' ideas due to shyness. In the resources, teachers also upload links for reference, providing learning assistance when students find it difficult to access relevant materials.

After the end of teaching, the evaluation of teaching effectiveness and the mastery of knowledge by students are also the focus of attention for teachers. By publishing in class or after class tests on the intelligent classroom platform, students can directly determine their level of knowledge mastery. After the test, not only can we see the grades of each student, but we can also see the overall distribution of

students' grades, the proportion of easily incorrect questions, and incorrect answers, which can help teachers better understand the learning effectiveness of students and adjust teaching methods in a timely manner. By publishing homework tasks on the intelligent classroom platform, not only can teachers evaluate, but they can also delegate the power of evaluation to students. To achieve this, simply move your fingers and set the scoring point to complete. Truly involving students in the entire learning process and in multiple aspects. It is worth mentioning that all activities applied in the intelligent classroom can have score settings. At the end of the semester, the report can be directly exported from the platform to obtain the activity scores of each student in the entire class. By modifying the proportion of activity scores, students can directly obtain their hourly scores. This scoring method is more scientific, professional, and fair. Truly achieving the full process assessment of inorganic chemistry courses greatly improves the seriousness of students' daily learning.

## 5. CONCLUSION

Due to the drawback of having too few class hours in inorganic chemistry, theoretical knowledge is based on the principle of "necessity first, adequacy as the degree, and practicality as the main focus", and some purely theoretical knowledge is appropriately deleted. However, this approach still cannot achieve good teaching results. the combination of inorganic chemistry and intelligent classroom platforms for blended teaching reform can not only achieve real-time

and timely learning of knowledge for students, but also enhance their learning initiative and enthusiasm. Moreover, the evaluation method of blended teaching reform is also more scientific. the reform of inorganic chemistry blended teaching based on intelligent classroom has many advantages, but there are also some drawbacks. For example, it is not possible to achieve diversity in test paper composition. Online exams cannot be achieved, and real-time monitoring of students through intelligent classroom platforms during testing cannot be achieved. Integrity issues during activities can only be supervised offline by teachers. So, continuing to choose one or more suitable platforms for cooperation and carrying out blended learning reform is the focus of the next step.

## REFERENCES

- [1] Chen B.; Jiang J., The Construction of Problem Oriented Teaching Method and a Comparative Study of Teaching Effectiveness with Traditional Teaching Method: Taking the Teaching of "Civil Engineering Materials" Course as an Example [J]. Science and Education Guide, 2023(2):114-117.
- [2] Xu H., A Study on the Influencing Factors of Promoting Blended Teaching Reform in Undergraduate Colleges and Universities: A Case Study Based on Fuzhou University [J]. China Educational Technology, 2016(12):5. DOI:10.3969/j. issn. 1006-9860.2016.12.025.
- [3] Zhan P.; Liu X., the Application of Knowledge Point Comparison and Integration in Inorganic Chemistry Teaching [J]. Pharmaceutical education, 2022, 38(3):30-34.

# The Inheritance and Application of Qi Culture in the Ideological and Political Education of Civil Engineering Majors in Higher Vocational Education

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**Abstract:** This paper starts from the ideological and political education courses in civil engineering majors in vocational colleges, extracts the cultural genes and value norms contained in Qi culture, and integrates the creative spirit of Qi culture into the construction of professional culture. The aim is to solve the problems of "aphasia" and "anomie" in the dissemination of traditional culture among college students, and the solidification of ideological and political integration forms in vocational education. It explores the integration mode of ideological and political education courses, fully achieving the goal of spreading Qi culture, creating a "Qi craftsmanship" brand, and cultivating cultural confidence among college students.

**Keywords:** Qi Culture; Architectural Engineering Survey; Higher vocational education

## 1. EXPLORATION OF THE INTEGRATION PATH OF QI CULTURE

Inherit and develop, condense the educational concept of "craftsmanship in the same place". Rooted in the fertile soil of Qi culture, drawing on the essence of Qi culture, taking moral education as the foundation, comprehensively exploring the cultural genes and value norms contained in Qi culture from multiple aspects, deeply combining with the corresponding economic, political, and cultural theories of the country and business regulatory departments, transforming it into an effective carrier of socialist core values and socialist culture with Chinese characteristics;

Break through the passive indoctrination style in traditional classrooms. By telling stories,

evoking emotions, expressing emotions, and expressing actions, integrating ideological and political points into ancient and modern stories, we can stimulate students to feel as if they are in the story, guide them to express their emotions towards the story, and encourage them to inherit the spirit behind the story. Integrating spiritual guidance from the perspective of ideal beliefs into the learning of "moistening things silently";

Innovative teaching process. Full time teachers, based on personal experience and practical thinking in education, creatively introduce educational carriers and methods that are not included in teaching regulations, combining with famous local cultural museums, civil engineering buildings, and well-known construction enterprises in Zibo. When preaching the "spirit of craftsmanship", it can be pointed out that the concept of "craftsmanship" was originally proposed by the official book "Kao Gong Ji" of the Qi state, which further explains the rich connotations of Qi craftsmen and analyzes their social functions; When discussing prefabricated buildings, students can be led to visit residential projects under construction in Zibo, such as "Forest Xingyue" and "Runyuan", to experience the booming development of the local construction industry in Zibo; Students can go to local construction companies for on-the-job training in the practical stage, practicing the true essence of the "craftsman spirit" in practice.

Quantify student evaluation indicators and drive the high-quality development of Qi culture in curriculum ideological and political education. Add indicators of course ideological and political education in the

evaluation of teaching, which can involve: whether you feel the same cultural elements in this course, whether the integration of culture is abrupt and abrupt, whether the integration of course ideological and political education is flexible and effective, whether your values have been positively influenced in this course, and what else you hope to gain from this course in addition to professional knowledge. Based on student feedback, guide the continuous improvement of ideological and political teaching objectives, content, structure, mode, and other aspects in the Qi Culture course, in order to truly achieve the effect and role of inheriting Qi Culture.

## **2. THE INFILTRATION, CULTIVATION, AND APPLICATION OF QI CULTURE IN THE "SECOND CLASSROOM"**

Build a "second classroom" education platform. Based on the different cognitive levels, learning abilities, and personal qualities exhibited by students during the teaching process, select learning methods that are suitable for each student's characteristics for targeted teaching, leverage their strengths, make up for their shortcomings, stimulate their interest in learning, and establish their confidence in learning. Build a "second classroom" education platform with "professional clubs", "skills competitions", and "interest groups" as the main body. Change the dissemination of Qi culture from a single classroom to infiltration in "interest groups", cultivation in "professional" clubs, and application in "skill competitions".

the high-level innovation of integrating culture and ideological and political education through competition to promote education. the purpose of cultural dissemination is not only to impart cultural elements, including theoretical knowledge, values, and spiritual pursuits, to students, but most importantly, to subtly influence their ideological consciousness, behavior, and behavior. How to test and quantify the expression of student behavior and moral standards has always been a worthwhile research question, but there is no doubt that the results of vocational college skill competitions are the most direct indicator for testing students.

The civil engineering major competitions in vocational colleges are all based on industry

and enterprise job requirements, and the content of the competitions is currently the most mainstream and cutting-edge process, technical equipment, and production methods. the content and concept of the competition have achieved seamless integration between course content and competition content. Adhere to the moral education concept of "double rest for morality and technology", and enable students to fully understand the willpower and qualities of civil engineering personnel, such as fearlessness of difficulties, courage to climb new heights, hard work, unity and cooperation, and strict attention to detail, in the process of teaching and practice

## **3. THE INTEGRATION OF QI CULTURE AND IDEOLOGICAL AND POLITICAL ELEMENTS INTO PROFESSIONAL COURSES**

### **3.1 The Narration of Qi Culture in Professional Course Ideological and Political Education**

The condensed elements of Qi culture should run through all stages of professional teaching. Teachers in the classroom integrate ideological and political points into ancient and modern stories through storytelling, emotional arousal, emotional expression, and action, and silently infuse the spirit of Qi culture into the entire process of classroom teaching.

### **3.2 The sublimation of Qi culture in the "second classroom"**

Based on the different characteristics of students and their varying levels of acceptance of classroom knowledge, construct a "second classroom" education platform with "professional clubs", "skills competitions", and "interest groups" as the main body. the spirit of Qi culture is further sublimated in the "second classroom", where students shift from passive acceptance of ideological and cultural knowledge to active thinking, and participate in different training objectives and forms of "second classrooms" based on personal characteristics, further enhancing the spirit of Qi culture in practice.

### **3.3 The Inheritance and Development of Qi Culture in Skill Competitions and Integration of Specialization and Creativity**

The integration effect of Qi culture needs to be tested in practice, and skill competitions and

innovation and entrepreneurship competitions are important assessment and evaluation methods for the teaching quality of vocational colleges. the integration of cultural spirit should be reflected in the professional abilities and comprehensive qualities of students. the results of skill competitions and the integration of specialization and creativity are a direct reflection of students' quality.

#### **4. EVALUATION OF THE INTEGRATION EFFECT OF QI CULTURE**

To test the integration effect of Qi culture, qualitative and quantitative analysis should be conducted. From a subjective perspective, an evaluation mechanism for the integration effect of Qi culture should be established, and teachers, students, and colleges should evaluate and provide feedback on the integration effect of Qi culture; From an objective perspective, a quantitative evaluation system should be developed from multiple aspects such as academic performance, student competition results, teacher research achievements, teaching achievements, student employment situation, and feedback from employers. Evaluate the integration effect of Qi's cultural spirit from multiple aspects, including students, teachers, colleges, and employers, both subjectively and objectively.

#### **REFERENCE**

[1] Zhang Yanli. Exploration and Learning of Ideological and Political Elements in

Curriculum - Taking the "Qi Culture Classic Guide" Course as an Example [J]. Shandong Education: Middle School Journal, 2020, 000(013): P. 37-38.

[2] Lu Ying. Research on the Practice of Cultivating Innovative Talents under the Background of Cultivating Virtue and Talents - Taking "Qi Culture" Teaching as an Example [J]. Chinese Language Construction, 2023(19): I0008.

[3] Yu Yan, Dong Junjie, Ma Guoqing. Museum characterization and response strategies under the impact of urban traffic: A case study of "Zibo BBQ" traffic and Zibo cultural and museum venues [J]. Southeast Culture, 2023(6):169-175.

[4] Zhao Hongjuan, Zhou Si, Zhao Yanhua. Research on the International Communication of Qi Culture from the Perspective of the "the Belt and Road" Construction [J]. News Lovers, 2022(4):3.

[5] Geng Fangchao "Using righteousness to govern affairs": the value orientation of the pre-Qin Confucian theory of knowledge and action [J]. Qilu Academic Journal, 2022(6):5-14.

[6] Gao Deyi, Zong Aidong. From Ideological and Political Courses to Curriculum Ideological and Political Education: Constructing a Curriculum System for Ideological and Political Education in Universities from a Strategic Perspective. China Higher Education, 2017.



# The Different Forms of Market Efficiency: Theoretical Arguments and Experimental Evidence

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**Abstract:** The efficient market hypothesis (EMH) can be divided into three parts, they are weak form efficiency, semi-strong form efficiency and strong form of efficient market. This essay will be divided into two parts; the first part will explain and discuss the relationship between these three forms. Furthermore, on the second part this essay will discuss the rational behaviour of investors in the Behaviour Finance, the forecast prices in the Random Walk Theory and the reactions of market, respectively. Focused on the empirical tests of weak form, semi-strong form and strong form of efficient market. In order to argue the three forms of efficiency in the EMH cannot actually hold in the financial market.

**Keywords:** EMH; Forecast Price; Actual Financial Market

## 1. THE RELATIONSHIP BETWEEN THESE THREE FORMS IN THE EMH

### 1.1 Basic concepts of the efficiency market hypothesis (EMH)

According to Bossaerts (2002), the efficient market hypothesis, which was constructed by Fama (1965, 1970) claimed that it would be a useful auxiliary to ameliorate further the Capital Asset-Pricing Model (CAPM), which aimed to make predictions in future financial markets. [2] And the EMH tested the CAPM through assuming that the prices reflect completely and immediately available information in an efficient market, in addition the investors and firms cannot gain the excess returns with the analysis of information.

### 1.2 Foundation: the weak form efficiency

Bossaerts (2002) illustrated that the price is able to reflect fully all available information in efficient markets in the EMH. [2] the EMH as an assumption that used three forms to test whether it is impossible to make predictions in actual financial market. These three forms

believed the prices have no connections with the data of past prices, public available information and all the private and public information, respectively. (Blake, D. 2000). [1] It will be actually operated in the financial market. Moreover, the weak form efficiency was the foundation of these three forms and the semi-strong form efficiency was based on it and then the strong form of efficient market must follow the semi-strong form efficiency.

### 1.3 A progressive relationship between these three forms

According to Blake (2000), the k% filter rule was the most significant test of the weak form efficiency in the EMH, which gave an evidence to guarantee the relationship between future prices and different sorts of information. [1] In fact, the size of k% is not relevant under a buy-and-hold strategy. Because the trading rule would be changed over time sounds like a systematic pattern, which means that the investors could not get the excess profits if the merely buy-and-hold on time. In this case, if the efficient market hypothesis hold the actual financial market, it was impossible that ex-beliefs can obtain the excess returns through the forecast price of available information. It is clear to know that the relationship of these three forms, which means that the assumption of the weak form efficiency has to be built first in the actual financial market and then the semi-strong form and strong form of efficient market are able to satisfy step by step.

## 2. THE OPERATION OF THE EMH IN ACTUAL FINANCIAL MARKETS

### 2.1 Forecast Price

2.1.1 The investors rely on forecast price in behavioural financial philosophy

Pilbeam (2010) maintained that an article named Psychology of the Stock Market, which

showed the relationship between the belief of investors and the exchange of stock price on trading was written by Selden at 1912. [4] After that, Amos Tversky and Daniel Kahneman (1979) built and developed the behavioural economics or the prospect theory that through observing human's belief to explain the behaviour of investors in actual financial market. the activities of investment depended on the forecast price of the information that was reflected by price, in order to know the risks and returns. For example, Overconfidence of investors is a big problem in trading. It would have a negative effect on the behaviour of financial activities. Investors believed there were some news showed that a big worth in the investment of biotech stocks and predicted it would have large potential returns. In addition, there were lots of positive information that guarantee their beliefs and as if it is not necessary that ignored risk of information in investment. It is clear to see that the EMH cannot operate in the actual financial market because people's investment relied on their analysis of the data about price.

#### 2.1.2 A deviation between forecast price and the data in actual financial market

On the contrary, Bossaerts (2002) argued that in the EMH because the past data was stable, the prior beliefs of investors is almost correct in empiricism. [2] Nevertheless, the results, which from the tests of actually using the EMH in the actual financial market illustrated that through the empiricism of the EMH merely cannot means the price was able to predict with available information. To be more specific, there will be a deviation between the beliefs of investor and reality and the beliefs of investors might unbiased. In other words, the prior belief of investor might be unbiased and then leading to the irrational behaviour, which means that the prices incorporate the available information that statistic from the past irrational information was wrong. To some extent, the efficient market hypothesis, which claimed the prices cannot reflect completely all available information the truth is that the EMH cannot hold the actual financial market. (Pilbeam, K. 2010). [4]

## 2.2 The Random-Walk Hypothesis

2.2.1 The random-walk hypothesis worked on the weak form efficiency

Otherwise, Pilbeam (2010) also mentioned that the condition of the efficient market hypothesis, which can really operate in the financial market is similar to a fair game. [4] To be more specific, because of the risk profile, both of the really profit and the expected return from the portfolio were the same without systematic distinction. In the EMH, the random-walk hypothesis would work if the weak form efficiency was built, in other words, if the price was irregular people cannot predict price with information. For example, Erdős and Ormos (2010) argued that there was 72% component of the random walk in prices of art auction in the past 134 year in America, which means that the past price could reflect some information in a period time. [3] From this case, it is easy to see that weak form EMH actually hold the financial market in some special periods.

#### 2.2.2 The semi-form efficiency may control the actual financial market

In addition, there was an evidence to favour the efficient market hypothesis, which was the market over-reaction and market under-reaction that caused by the public news would not be impacted price. Fama maintained that the reason why the anomaly detection of the EMH happened was that the over-react news leads the market under reaction, but it could be counteracted. For example, using the event studies to test how did the public information focus on stock price in the semi-strong efficiency. If the EMH actually hold the financial market, when the public news announced whatever the market was under-react or over-react, the share price would increase from the normal price to the price that expected by the EMH or decrease from a higher price to the price that also estimated through the semi-strong form efficiency of the EMH. Which means that the behaviour of investors would have no effect on selling or buying stocks with negative or positive announcement. (Pilbeam, K. 2010). [4]

2.2.3 The semi-strong form efficiency cannot explain the whole-period price reflection, profit was depended on the size of company Conversely, according to Singh (2008), there were two anomalies in the EMH, they are the size effect, which was found by Banz (1981) and the price-earning effect (P/E) that was illustrated by Basu (1977), respectively. In this

case, it depended on different period whether the lower P/E ratio had risks, so the semi-strong EMH cannot explain the price reflect the public information in the whole period. In addition, Pilbeam (2010) argued another anomaly from the size effect that because of it is possible for small firms to adjust their structures, the Beta of small companies, which showed the variance in return was lower than big firm. [4] Which means that the under this situation the small corporations could gain much more returns and the weak form EMH was failed with the past bates.

### 3. CONCLUSION

To sum up, it is difficult for people to identify the degree of the word 'fully' in the notion of the efficient market hypothesis, which said that the price can reflect fully and immediately the available information. There was a flaw in the EMH, although the EMH might be operated in the financial market in some special situations, the truth is that the EMH cannot hold the actual financial market. In fact the tests of behaviour of investors in weak form efficiency and the size effect and P/E in

semi-strong form efficiency certificated the investors and firms are able to gain the excess returns from predicting prices through the available information, which was reflected prices.

### REFERENCES

- [1] Blake, D. (2000). *Financial market analysis*. 2nd ed. Chichester: Wiley, pp. 389-408.
- [2] Bossaerts, P. (2002). *the Paradox of Asset Pricing*. 1st ed. Princeton: Princeton University Press.
- [3] Erdős, P. and Ormos, M. (2010). Random walk theory and the weak-form efficiency of the US art auction prices. *Journal of Banking & Finance*, 34(5), pp. 1062-1076.
- [4] Pilbeam, K. (2010). *Finance and financial markets*. 3rd ed. Basingstoke: Palgrave Macmillan.
- [5] Singh, R. (2008). Company Attributes and Cross Section of Stock Returns in India. *Asia-Pacific Journal of Management Research and Innovation*, 4(2), pp. 82-89.

# Research on Modern Urban Landscape Design Under Ecological Concept

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**Abstract:** This paper mainly discusses the application of ecological concept in modern urban landscape design and its role in urban green space construction. Firstly, the general situation of modern urban landscape design is introduced, including its characteristics and development trend. Then it analyzes the importance of ecological concept in landscape design, and how to create green and sustainable urban landscape through ecological thinking. Then it discusses the problems faced by contemporary urban landscape design, including urbanization, resource shortage and other challenges. Then it puts forward the methods and strategies of modern urban landscape design based on ecological concept. Through the research of this paper, we hope to promote the ecological construction of urban green space better.

**Key words:** Modern urban landscape design; Ecological concept; Sustainable development; Urban green space; Ecological diversity

## 1. INTRODUCTION

As an important part of urban planning and construction, modern urban landscape design is not only an important means of urban greening and beautification, but also one of the key ways to realize the sustainable development of urban ecology [1]. This paper aims to discuss the important role of ecological concept in modern urban landscape design, analyze the problems faced by contemporary urban landscape design, and put forward suggestions based on ecological concept [2]. Through the in-depth analysis of ecological concept and modern urban landscape design, it is hoped that it can provide useful references for urban planning, construction and greening work, promote the ecological development of urban landscape, and create a more livable, healthy and sustainable urban living environment.

## 2. OVERVIEW OF MODERN URBAN LANDSCAPE DESIGN

### 2.1 Diversified functional requirements

Modern urban landscape design should meet a variety of functional needs at the same time, such as recreation, health exercise, social activities and so on. Designers need to ensure the quality of greening while taking into account the different needs of urban residents to create urban green landscape with diversified functions [3].

### 2.2 Ecological balance and sustainable development

Modern urban landscape design emphasizes the concept of ecological balance and sustainable development. In the planning and design process, designers should consider the stability and diversity of the ecosystem, introduce ecological functional elements, protect biodiversity, and realize the coordinated development of the city and nature.

### 2.3 Innovative design concepts and technical means

Modern urban landscape design pays attention to the application of innovative design concepts and technical means. Designers continue to explore new materials, new technologies, and use digital design tools to improve design efficiency and create more creative and innovative urban green Spaces.

### 2.4 Cultural inheritance and social feedback

Modern urban landscape design attaches importance to cultural inheritance and social feedback. the designer considers the local cultural characteristics in the design process, and is committed to providing high-quality leisure and entertainment places for urban residents and promoting the harmonious development of society [4].

## 3. THE ROLE OF ECOLOGICAL CONCEPT IN LANDSCAPE DESIGN

### 3.1 Ecological balance

One of the functions of ecological concepts in landscape design is to maintain and improve the stability and diversity of natural ecosystems by considering ecological balance. In the planning and design process, designers need to consider the collocation of different vegetation types, the interaction of ecosystems, and the conservation of biodiversity. Through reasonable vegetation selection, water resources management and other means, the garden landscape can achieve good interaction with the surrounding natural environment, and promote the maintenance of biodiversity and the healthy development of the ecosystem.

### 3.2 Sustainable Development

Another key role of ecological concepts in landscape design is to promote sustainable development. Designers should consider the long-term impact of landscape design, including the growth cycle of vegetation, the efficiency of water use, and the renewable energy. By designing reasonable irrigation system, choosing vegetation suitable for local climate conditions, using environmentally friendly materials and other measures, the consumption of natural resources on landscape can be reduced and the sustainable development of landscape can be promoted.

### 3.3 Ecological function improvement

Ecological concepts can also help designers enhance the ecological functions of landscape architecture. Not only can the landscape have ornamental value, but also can undertake ecological functions, such as regulating the climate, purifying the air, maintaining water, improving soil quality and so on. Through the introduction of ecological functional elements, such as wetlands, green roofs, rain gardens, etc., garden landscapes can become part of the urban ecosystem and provide a healthier and livable living environment for city residents.

### 3.4 Integration of nature and humanity

The ecological concept can encourage designers to organically integrate the natural environment with the human environment to achieve the comprehensiveness and balance of the landscape. By imitating the structure and function of the natural ecosystem, designers can create a natural landscape atmosphere in the garden landscape and guide people to get close to nature. At the same time, it can also combine the local cultural tradition and

historical background to give the garden landscape more cultural connotation, making it become the cultural heritage and spiritual home of the city.

## 4. PROBLEMS FACED BY CONTEMPORARY URBAN LANDSCAPE DESIGN

### 4.1 Challenges brought by urbanization process

With the acceleration of urbanization, urban landscape design is facing the challenge of limited land resources and increasing development pressure. In the process of urbanization, a large amount of land is used for the construction of residential, commercial and infrastructure, resulting in insufficient urban green space, compressed landscape space, resulting in the deterioration of urban ecological environment, affecting the quality of life of residents.

### 4.2 Balance between ecological environment protection and landscape design

In urban landscape design, how to balance the relationship between ecological environment protection and landscape design aesthetics is an important issue. Some excessive pursuit of landscape effect design may destroy the original ecological environment, reduce vegetation coverage, affect biodiversity and ecosystem stability. Designers need to pay attention to the protection of the ecological environment while pursuing beauty, to ensure that the landscape design has both artistic and ecological functions.

### 4.3 Insufficiency of urban landscape design standards and norms

At present, urban landscape design standards and norms are relatively lagging behind, and there are certain deficiencies. The lack of uniform design standards and norms may lead to uneven quality of design proposals, which will have a negative impact on the urban environment. Strengthening the formulation and implementation of urban landscape design standards and establishing a scientific and reasonable design evaluation mechanism are helpful to improve the quality and level of landscape design.

### 4.4 Integration of social participation and cultural inheritance

Urban landscape design needs to focus on the

integration of social participation and cultural inheritance to meet the diverse needs and cultural characteristics of residents. Designers should fully consider the opinions and suggestions of local community residents, fully integrate local cultural traditions and historical cultural elements in the design process, and create garden landscapes with local characteristics and ethnic customs.

## **5. MODERN URBAN LANDSCAPE DESIGN BASED ON ECOLOGICAL CONCEPT**

### **5.1 Ecological planning and management**

Ecological planning is the first step of modern urban landscape design. Through scientific research and planning, ecological protection areas, ecological restoration areas and artificial landscape areas can be reasonably divided to protect and restore the integrity and stability of the ecosystem. In urban landscape design, ecological management refers to the scientific management of vegetation, water, soil and other ecological elements after the completion of construction to ensure the ecological function and environmental sustainability of the landscape.

### **5.2 Vegetation configuration and biodiversity**

Select and allocate vegetation types reasonably, pay attention to the diversity of plants, and improve the ecological function of urban greening system. Enhance the adaptability and biodiversity of the ecological landscape through the introduction of local characteristic plants and natural vegetation. Vegetation allocation can not only beautify the urban environment, but also improve the urban air quality, regulate the climate, protect the surface water and soil and other ecological benefits.

### **5.3 Green transportation and ecological corridor**

In urban landscape design, attention is paid to the integration with urban roads and traffic systems, through the setting of green transportation facilities and walking/cycling lanes, encourage residents to walk and ride, reduce automobile pollution and traffic congestion, and improve the quality of urban environment and quality of life. At the same

time, ecological corridors and biological corridors will be built to connect urban green space systems and promote the exchange and continuation of urban biodiversity.

### **5.4 Community participation and cultural inheritance**

In modern urban landscape design, attention is paid to the participation of community residents and the integration of cultural inheritance, the needs and cultural characteristics of local communities are fully considered, and the interaction between community residents and landscape design is actively promoted by holding community gardening activities and cultural festivals, so as to form urban landscape with local characteristics and community identity.

## **6. CONCLUSION**

In general, the modern urban landscape design based on the ecological concept is to realize the protection and promotion of the urban ecological environment, promote the sustainable development of the city and improve the quality of life of residents. Through various strategies and measures, create urban landscape with ecological, cultural and social values, and make positive contributions to the green and sustainable development of the city.

## **REFERENCES**

- [1] Zheng Liang. (2024). Application of High-Tech Means in Urban Recreation Landscape Design. *Landscape Architecture*, 7(1).
- [2] Wenjin Zhao & Khairun Nisa Mustaffa Halabi. (2024). Research on Street Landscape Design Along Urban Rail Transit Lines. *Highlights in Art and Design*(1), 28-33.
- [3] Yazdani Nasim. (2024). Immigrants' habitus transference and recreational expectations in urban parks cultural landscape settings. *Landscape History*(1), 97-117.
- [4] Wang Xin. (2023). RETRACTED: the practice teaching of regional cultural expression in rural landscape planning and design under the background of urban-rural integration. *International Journal of Electrical Engineering Education*(1\_suppl), 3625-3641.

# Preparation of CdS/TiO<sub>2</sub> Photoelectrodes

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**Abstract:** TiO<sub>2</sub> nanomaterials have excellent electron mobility and anisotropic ordered nanostructures. In this paper, CdS/TiO<sub>2</sub> photoelectrodes were prepared by chemical deposition and characterized in terms of crystal structure and sample morphology, and the results showed that CdS sensitized in TiO<sub>2</sub> carriers.

**Keywords:** Photoanode, Chemical Deposition, Sensitization

## 1. INTRODUCTION

CdS is a wide bandgap semiconductor material that can respond in the visible range and has excellent photoelectric properties. Peng Lianmao's group [1] invented a method to deposit CdS quantum dots into the interior of TiO<sub>2</sub> by continuous layered electrochemical deposition, with a photoconversion efficiency of up to 4.15%; Zhu et al. [2] added a ZnO layer between the TiO<sub>2</sub>/CdS electrodes and introduced a fast transport layer to reduce the charge complexation; Lee et al. [3] designed the "waterfall" energy band structure CdSe/CdS QDs sensitizers to synergistically sensitize QDSSCs, which not only broadens the absorption range of the spectrum. Kamat's group [4] introduced "Mn<sup>2+</sup>" ions into CdSe/CdS to extend the lifetime of the excited state of the quantum dots, and KongKanand et al. [5] sensitized semiconductors with different sizes of quantum dots and found that the size of the quantum dots only affects the short-circuit current but has little effect on the open-circuit voltage, so controlling the size of the quantum dots has little effect on the open-circuit voltage. voltage has little effect, therefore, controlling the size of quantum dots plays an important role in obtaining high response current.

## 2. PREPARATION OF CDS/TIO<sub>2</sub> PHOTOELECTRODES

Dissolve 8g anatase-type lipophilic nano TiO<sub>2</sub> in 240 ML (water and methanol volume ratio

3:1 mixture) heating 80°C through the nitrogen high speed mixing uniformly add 1.6ml of aqueous sodium hydroxide solution, stirring for 4 min. and then add 10 ml of cadmium sulphate solution stirring for 5 min; after that, add 10 ml of sodium sulphide solution stirring for 5 min. repeat the above two small steps for 4 times. Finally, the mixture was added to the centrifuge tube symmetrically placed in the centrifuge (speed of 7000r/min) centrifugation, the upper and lower stratification, the supernatant is discarded, and then add the appropriate amount of water and methanol mixture centrifugation again, remove the supernatant a total of 4 times to separate, to obtain the solid in the surface dish, oven (40°C -50°C) drying. CdS modification of ZnO and the same way as the method of modification of TiO<sub>2</sub> by CdS the method of CdS modification of ZnO is the same as that of CdS modification of TiO<sub>2</sub>, only 8g of lipophilic nano-ZnO can be substituted for 8g of anatase lipophilic nano-TiO<sub>2</sub>.

## 3. CRYSTAL STRUCTURE CHARACTERIZATION

In this paper, the structure of the experimental samples was characterized using a Bruker AXS D8 Advance polycrystalline X-ray diffractometer from Germany.

## 4. SAMPLE CHARACTERIZATION

In this paper, the morphology of the samples is observed by FEI Sirion 200 field emission environmental scanning microscope.

## 5. STRUCTURAL ANALYSIS OF CDS/TIO<sub>2</sub> NANOPARTICLES

The XRD diagrams of CdS quantum dots sensitized TiO<sub>2</sub> nanoparticles are shown in Fig. 1. The characteristic peaks of the XRD spectral phases of TiO<sub>2</sub> appeared at 2θ= 25.326°, 37.842°, 48.085°, 53.948°, 55.091°, and 62.756° with six major diffraction peaks. They correspond to the crystal planes of 101,

004, 200, 105, 211, and 204 of  $\text{TiO}_2$ , which are basically consistent with the  $\text{TiO}_2$  anatase XRD standard card (JCPDS NO. 71-1166). From the CdS/ $\text{TiO}_2$  map, the characteristic diffraction peaks appeared at  $2\theta = 25.08^\circ$  and  $28.38^\circ$  in the red figure, corresponding to the (100) and (101) crystal planes of the CdS hexagonal crystal system, respectively, and matched with the standard card (JCPDS NO. 77-2306) control, which indicated that the synthesized CdS quantum dots were of fibronite structure. A comparison of the XRD spectra before and after sensitization of  $\text{TiO}_2$  particles with CdS quantum dots reveals that the CdS quantum dots have been attached to the surface of  $\text{TiO}_2$  particles. From TEM image, it can be seen that the CdS quantum dots appeared to be unevenly distributed on the surface of  $\text{TiO}_2$ , and the surface of  $\text{TiO}_2$  after sensitization was rough, with particles attached appeared to be wrapped, which again indicated that the CdS quantum dots were attached to the surface of  $\text{TiO}_2$ .

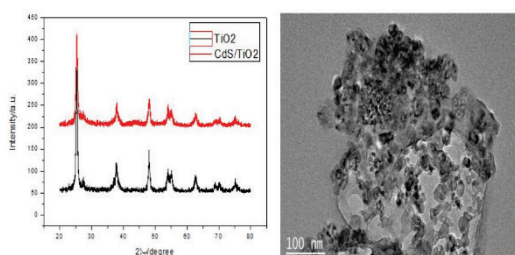


Fig. 1 XRD image of CdS quantum dots sensitized  $\text{TiO}_2$  nanoparticles  
TEM image of CdS/ $\text{TiO}_2$  particles

## 6. MORPHOLOGICAL ANALYSIS OF CDS/TIO<sub>2</sub> PHOTOANODES

As shown in Fig. 2a, there are CdS,  $\text{TiO}_2$  densely and compactly arranged in the thin film layer of the photoelectric anode, and this kind of dense arrangement is conducive to the rapid injection of the excited electrons from CdS into the conduction bands of  $\text{TiO}_2$ , so as to realize the effective separation of holes and electrons. Because of the fast electron transport rate of ZnO and  $\text{TiO}_2$ , the electrons in the conduction band will be transported to the polyaniline in time. Figure 2b shows an obvious wrapping phenomenon, indicating that the CdS quantum dots are centrally attached around the semiconductor. At the

same time, the granular semiconductor oxide greatly increases the surface area for the attachment of CdS quantum dots. At the same time, CdS has a high light absorption coefficient, so a thin photoanode can absorb most of the visible light, and this property reduces the cost for reducing the film thickness.

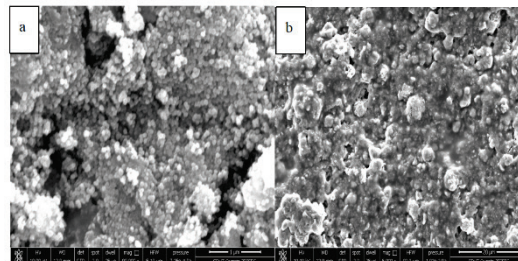


Fig. 2 SEM of CdS/ $\text{TiO}_2$ /ZnO photoanode (a) and (b)

## 7. CONCLUSION

The CdS was sensitized on the surface of ZnO and  $\text{TiO}_2$  respectively by means of continuous CBD method, and the CdS sensitization on  $\text{TiO}_2$  carrier was analyzed by XRD, SEM.

## REFERENCES

- [1] Ruhle S, Shalom M, Zaban. Quantum-Dot-Sensitized Solar Cells [J]. *Chem Phys Chem*, 2010, 11(11):2290—2304.
- [2] Sun W T, Yu Y, et al. CdS quantum dots sensitized Ti nanotube-array photoelectrodes [J]. *J Am Chem Soc*, 2008, 130(4):1124-1125.
- [3] Zhu G, Pan L K, Xu T, et al. Cascade structure of  $\text{TiO}_2$ /ZnO/CdS film for quantum dot sensitized solar cells [J]. *J. Alloys Compd*, 2011, 509(29):7814—7818.
- [4] Lee Y L, et al. Highly efficient quantum-dot sensitized solar cell based on co-sensitization of CdS, CdSe [J]. *Adv. Funct. Mater.* 2009, 19:604—609.
- [5] Santea P K, Kamat P V. Mn-doped quantum dot sensitized solar cells: A strategy to boost efficiency over 5% [J]. *J. Am. Chem. Soc.*, 2012, 134(5):2508-2511.
- [6] Kong Kanand A., Tvrđy K., Takechik., et al. Quantum dot solar cells. tuning photoresponse through size and shape control of CdSe - $\text{TiO}_2$  architecture. *J. Am. chem. soc.*, 2008, 130(12):4007-4015.



# Characteristics of China's Baijiu Industry from The Perspective of Supply Chain Finance

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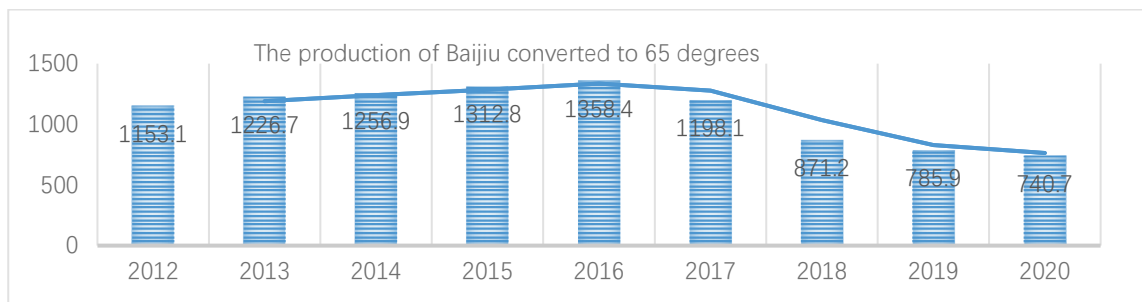
**Abstract:** The baijiu industry has a long industrial chain involving various stages such as cultivation, brewing, and sales, with a long capital occupation cycle. It is influenced by factors such as raw materials, distribution channels, brand building, and seasonality. Therefore, enterprises in the baijiu industry chain face significant financing needs. Supply chain finance provides solutions for the baijiu industry by reducing financing costs, improving financing efficiency, alleviating information asymmetry, and expanding financing channels. At the same time, supply chain finance also helps improve supply chain management and optimize capital occupation structure. For the baijiu industry, it is recommended to strengthen the application of supply chain finance and establish a supply chain finance platform composed of core liquor production enterprises, upstream and downstream enterprises, and financial

institutions. This will address the current issues of difficult and expensive financing for enterprises, enhance the overall capital operation efficiency and competitiveness of the industry, and contribute to the healthy development of the real economy.

**Keywords:** Supply Chain Finance; Baijiu Industry; Financing Needs

## 1. INTRODUCTION

In today's increasingly globalized and competitive market environment, the baijiu industry, with its numerous enterprises and rich historical background, continues to play a significant role in China's economy. However, the industry is also facing unprecedented challenges, including fluctuating market demand, rising costs, and intense competition. One of the key issues that liquor companies are grappling with is how to effectively finance their operations and expansion.



**Figure 1:** Annual Production of Chinese Baijiu (Note: Since 2020, the National Bureau of Statistics of China has no longer published data on the production and sales volumes of industrial products, including Baijiu)

Supply Chain Finance (SCF) emerges as a promising solution to these financing challenges. SCF is a financing model that connects core enterprises and their upstream and downstream suppliers and customers, providing comprehensive financial services through banks or non-bank financial institutions. By integrating supply chain

resources, optimizing capital allocation, and reducing financing costs, SCF offers liquor companies more efficient and convenient financing solutions.

In this context, an in-depth analysis of baijiu industry enterprises' financing needs from the perspective of SCF becomes crucial. It not only helps to alleviate the financial pressure

on enterprises in the supply chain, but also reduces financial risks and paves the way for the baijiu industry to emerge from its current difficulties. This introduction aims to set the stage for a comprehensive discussion on how SCF can be leveraged to address the financing challenges faced by baijiu industry enterprises.

## **2. CHARACTERISTICS OF CHINA'S BAIJIU INDUSTRY FROM THE PERSPECTIVE OF SUPPLY CHAIN FINANCE**

As China's unique traditional liquor culture, Baijiu has a long history, large market demand, sound industrial chain and a large number of enterprises. In the national economic industry classification GB-2002, Baijiu industry belongs to the category of wine, beverage and refined tea manufacturing industry in the manufacturing industry. It is located in the secondary industry, category C manufacturing industry, and the number of 15 major categories of liquor manufacturing industry is 1521. It is one of the important sources of taxation for the country. the Baijiu industry, especially the Baijiu industry in China, has the following characteristics from the perspective of supply chain finance:

**2.1 Baijiu industry chain length:** Baijiu industry involves multiple links from raw material planting, brewing, storage, packaging to sales, specifically including 8 links: raw material planting, brewing, blending, storage, packaging, sales, brand building and after-sales service. For a specific production enterprise, there are more enterprises in its product supply chain. the longer the profit distribution cycle for the enterprise in the supply chain after the product is finally sold, the longer it will be.

**2.2 Long capital occupation cycle of Baijiu industry:** Baijiu industry has a long capital occupation cycle, mainly due to factors such as raw material procurement, long production cycle, storage and aging, channel construction, brand construction, seasonal inventory backlog and accounts receivable. Enterprises need to plan the use of funds reasonably, optimize the structure of fund utilization, and improve the efficiency of fund utilization.

**2.2.1.** In the raw material procurement process, grain procurement requires a large amount of capital, and the transportation and storage of

grain as raw materials requires cost consumption.

**2.2.2 Production link:** Baijiu brewing is a time-consuming process. From raw materials crushing to finished products coming out of the cellar, it requires multiple fermentation, distillation and other processes. Long production cycle leads to long capital occupation time. Taking Maotai liquor as an example, according to the traditional Maotai liquor production process, there is one brewing cycle per year, and the production cycle of a finished product is about six years. Of course, the production cycle of other flavor Baijiu is shorter than that of Maotai flavor Baijiu, and the base liquor production cycle of most other flavor Baijiu is within 1-3 months.

**2.2.3 Storage and aging:** Baijiu needs to be stored and aged for a period of time to improve its taste and aroma. the longer the storage and aging time is, the better the quality of Baijiu is, but it also takes up a lot of money. For example, many Baijiu are marked with "15 years old" and other marks on the package. Although this does not mean that the product has been stored for 15 years, it means that the product is made of base liquor and 15 years old liquor. Previously, ordinary Wuliangye had to be aged for two years before it could be sold before leaving the factory. However, with the improvement of technology and the increase in demand, Wuliangye is now sold directly from the factory.

**2.2.4 Channel construction:** the construction of Baijiu sales channels requires a significant investment of funds, including the establishment of a dealer network and the deployment of retail terminals. Channel construction takes time and resources, resulting in a longer capital occupation cycle.

**2.2.5 Brand building:** the competition in the Baijiu industry is fierce, making brand building crucial. Brand building requires a significant investment of funds and time, including advertising, public relations, and events. the capital occupation cycle for brand building is relatively long, requiring continuous investment.

**2.2.6 Seasonal inventory backlog:** the seasonal nature of the Baijiu industry leads to the risk of inventory backlog, especially when market demand declines or competition intensifies. Inventory backlog increases capital

occupation.

2.2.7 Accounts receivable: Baijiu sales often adopt credit sales methods, resulting in a large number of accounts receivable for enterprises. Accounts receivable occupy funds and extend the capital occupation cycle.

2.3 Long brand building cycle for Baijiu enterprises: As a special type of alcoholic beverage with a high alcohol concentration, the brand recognition of Chinese Baijiu directly determines its sales price, consumption volume, and profit margin. Therefore, most Baijiu manufacturers attach great importance to brand building. the brand building of Baijiu enterprises is mainly reflected in the following aspects:

2.3.1 Establishment of brand awareness and popularity: Building a well-known brand requires time and continuous effort. For example, Baijiu manufacturers such as Maotai, Xifeng, and Fenjiu participated in the "Panama Rum and Liquor Expo" in the 1920s and 1930s and won awards, gaining recognition both domestically and internationally. Contemporary Baijiu enterprises use advertising, marketing, and sponsorship activities to gradually introduce and familiarize consumers with their brands. This process requires accumulating brand image, brand stories, and brand values, as well as establishing emotional connections with consumers.

2.3.2 Establishment of brand reputation and trust: the brand building of Baijiu enterprises also needs to win consumers' trust through

product quality and reputation. Consumers have high demands for the quality and taste of Baijiu, so enterprises need to continuously provide high-quality products and win consumers' recognition and trust through reputation spread. This process requires time to accumulate a good reputation and establish a reliable brand image.

2.3.3 Enhancement of market share and competitiveness: the Baijiu market is highly competitive, and enterprises need to enhance their market share and competitiveness through brand building. This requires enterprises to continuously invest resources in product development, market promotion, and channel expansion to increase market share and form differentiated competitive advantages compared to competitors. This process requires time to gradually enhance the enterprise's market position and brand influence.

2.3.4 Brand extension and diversified development: Once Baijiu enterprises have established a stable brand image and market position, they may consider brand extension and diversified development. This means leveraging the influence and trust of the brand to expand into other related fields or products to further increase market share and revenue. Brand extension and diversified development require enterprises to invest significant time and resources, and carefully consider the match between market demand and brand value.

**Table 1:** Baijiu Supply Chain Enterprises and Their Capital Cycles

	Raw material	Brewing	Blending	Storage	Packaging	Sales	Brand building	After-sales service
<b>Main business</b>	Planting of sorghum, wheat, corn, etc	Multiple fermentation and distillation processes yield the raw and base liquor.	Blending the original liquor of different years.	Storage to improve taste and aroma.	Bottled, boxed, anti-counterfeiting labels, etc.	Offline sales, online sales, catering and banquet	Advertising, Public Relations	Quality assurance, anti-counterfeiting verification, after-sales consultation, etc.
<b>Involving enterprises</b>	Agricultural Enterprises, Supply and Marketing Cooperatives	Baijiu production enterprises, base liquor production enterprises	Baijiu production enterprises (brand owners)	Baijiu production enterprises (brand owners)	Baijiu production enterprises (brand owners)	Distributors, Online sales, Direct sales, and Chain stores	Media companies, advertising agencies, new media companies	Telephone customer service platform, Website, Experience store.
<b>Capital occupation status</b>	Cash	3-12month	Short time	1-10years	Short time	About 6 month	Cash	Long time

### 3. BASED ON THE PERSPECTIVE OF SUPPLY CHAIN FINANCE:

### FINANCING NEEDS OF THE BAIJIU INDUSTRY

3.1 As a traditional industry, China's Baijiu industry boasts a significant scale, with a vast number of upstream, midstream, and downstream enterprises in the Baijiu supply chain. The operating conditions of these enterprises vary greatly. Most small and medium-sized Baijiu enterprises have not established independent and complete supply chain systems. The core Baijiu enterprises that have established comprehensive supply chain systems and can effectively manage supply chain resources are mostly listed companies with modern enterprise management systems. Therefore, the research focus of this study is on large and medium-sized Baijiu production enterprises above designated size, particularly those listed on the Shanghai Stock Exchange, Shenzhen Stock Exchange, and the Hong Kong Stock Exchange. The advantage of selecting these enterprises as research subjects is the convenience of accessing their regularly disclosed business management information. According to the public information from the China Securities Regulatory Commission, as of December 2023, there are a total of 21 listed Baijiu production and supply chain companies. Among them, 7 are listed on the Shanghai Stock Exchange, 10 on the Shenzhen Stock Exchange, 3 on the Hong Kong Stock Exchange, 1 on the New York Stock Exchange, and 1 listed in Canada.

3.2 Based on the analysis of public data such as annual reports of listed companies, we found that these listed Baijiu enterprises possess relatively strong coordination and bargaining power with their upstream and downstream supply chain partners. With the intensification of competition in the industry, these enterprises have begun to expand their upstream and downstream business areas through equity investment, supply chain finance, and other means. At the same time, the competition among core enterprises of different brands has gradually shifted to the competition of supply chain efficiency and resilience controlled by the core enterprises. How to meet the financing needs of upstream and downstream supply chain enterprises and enable them to grow together with the core enterprises has become the key to competition.

#### 4. CONCLUSION

Through the above analysis, the author found that all kinds of enterprises in the upstream, middle and downstream of the Baijiu supply chain have high demand for funds. Especially in recent years, after the epidemic, the overall economic transformation and upgrading, the overall government consumption has strictly controlled the consumption of white wine, and the preference of residents for white wine consumption has changed. The financing demand of upstream and downstream enterprises in the supply chain of Baijiu production enterprises is growing. The traditional financing model mainly relies on collateral, while the financing amount and interest rate level of credit loans are relatively high. Therefore, in order to solve the problem of difficult and expensive financing for supply chain enterprises through financing channels, innovative financial models are necessary.

#### PROJECT SOURCE

This paper is a partial research outcome of the general project "Financing Channels and Risk Analysis for Downstream Enterprises in Baijiu Supply Chain" (Project Number: JZW2023049), which is a 2023 national logistics education reform and research project for universities and vocational colleges jointly sponsored by the China Logistics Association and the China Federation of Logistics and Purchasing.

#### REFERENCES

- [1] Ma Enchao. Credit Risk Evaluation under Supply Chain Finance Model [J]. *Fortune Times*, 2020, (02):152.
- [2] Liu Chunxi. Can Supply Chain Finance Alleviate the Financing Constraints of Small and Medium-sized Enterprises? — Heterogeneous Analysis Based on the Quality of Information Disclosure [J]. *Regional Financial Research*, 2021(08):40-46.
- [3] Chen Shengquan. Research on the Optimization Strategy of Baijiu Supply Chain Based on the Background of O2O E-commerce [J]. *Business*, 2016(05):88-90.

# Research on The Influence of Social Support on College Students' Career Self-Efficacy

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**Abstract:** Career self-efficacy is an important factor affecting college students' employment, entrepreneurship and career planning. In this study, 400 college students were selected as research samples, and the occupational self-efficacy scale and the Social support Rating Scale (SSRS) compiled by Xiao Shuiyuan (2002) were used to analyze the relationship between occupational self-efficacy and social support of college students and the improvement countermeasures. the results show that there is a significant positive correlation between college students' career self-efficacy and social support. the stronger the social support, the higher the career self-efficacy of college students. To improve the professional self-efficacy of college students, it is necessary to strengthen social support, set up a good example and positive verbal persuasion.

**Key words:** Professional Self-Efficacy; Social Support; Relationship Study

## 1. DEFINITION OF CONNOTATION

Occupational self-efficacy is defined as an individual synthesizing all kinds of information to generate certain beliefs or confidence based on individual ability by judging and evaluating his or her own professional behavior ability. It focuses on the individual's belief judgment and reaction on whether he or she is competent for the task when he or she engages in occupation-related activities or tasks. As for the information sources of professional self-efficacy, Bandura proposed in 1977 that there are four main sources of information for professional self-efficacy: performance achievement, substitute experience, emotional stimulation, and verbal persuasion, which have been unanimously recognized and supported by the academic community at present. Yuan Shujie (2010) pointed out that students' career goals, career choices and career decisions are all affected by

self-efficacy. Social support should consist of three dimensions: subjective support, objective support and utilization of support. Subjective support focuses on emotional support experienced by individuals. Objective support mainly refers to an important resource that can meet people's social life and physiological needs. Support utilization refers to the degree to which an individual makes use of the support around him or her when facing a problem.

Zhang Jie (2019) studied the relationship between social support and career self-efficacy by taking pre-school education interns in higher vocational schools as research samples, and found that there was a significant positive correlation between social support and career self-efficacy, that is, the higher the level of social support, the stronger the students' career self-efficacy. the subdimension of social support, subjective support, is the most influential factor on career self-efficacy

## 2. RESEARCH PROCESS

In this study, 400 questionnaires were distributed to students in Z University of Shandong, and 332 valid questionnaires were collected, with an effective recovery rate of 83%. the occupational self-efficacy scale adopted in this study is a professional self-efficacy scale for college students revised by Yan Shiou in 2012 on the basis of previous achievements, and the social support rating scale is a social support rating scale (SSRS) for China compiled by Xiao Shuiyuan (2002) on the basis of relevant foreign research results and referring to China's national conditions. SPSS 21.0 software was used for statistical processing of the data.

## 3. RESEARCH CONCLUSIONS

3.1 Current situation analysis: College students' professional self-efficacy is lower

than the average, the overall level is general, and the level of self-evaluation is relatively unified and stable. Among the four dimensions, the average values of confidence level and difficulty perception are low, indicating that college students think it is difficult to choose a future career, career development and planning, and have insufficient confidence in their career choice ability and career planning. The scores of social support and its dimensions are higher than the theoretical median, indicating that college students have a higher level of social support.

**3.2 Gender difference:** In this study, it is found that the career self-efficacy of male college students is generally greater than that of female college students, and the perception of difficulty, overcoming obstacles and confidence level of female college students are significantly higher than that of male college students, indicating that female college students believe that the difficulty of future career selection, career development and planning is greater than that of male students. However, female college students have more confidence and determination to overcome difficulties than male college students, but in general, male college students have a higher sense of professional self-efficacy. This study found that there were no significant differences in the overall level of social support and the three sub-dimensions of subjective support, objective support and utilization of support.

**3.3 Grade difference:** There are significant differences in career self-efficacy among college students of different grades. Compared with juniors and seniors, sophomore students have the highest score. There are obvious grade differences in college students' social support, subjective support, objective support and utilization of support. The social support level of junior and senior students is significantly higher than that of freshman and sophomore students, showing a trend of higher social support level with higher grade.

**3.4 Correlation analysis:** College students' career self-efficacy has a significant positive correlation with social support. In addition to the perceived difficulty, career self-efficacy has a negative effect on social support, and the

other three dimensions, including confidence level, outcome expectation and overcoming obstacles, have a positive correlation with social support.

#### **4. COUNTERMEASURE ANALYSIS**

The quantitative analysis of this study shows that social support has a significant correlation and predictive function on the career self-efficacy of college students, and improving the career self-efficacy of college students can work together from many aspects.

**4.1 Increase success experience.** For college students, successful experience is mainly reflected in academic performance, student work, social practice and other aspects. On the one hand, college students need to improve their self-effort awareness, realize the importance of self-improvement for future career planning, find their strengths and weaknesses, and enrich their value. On the other hand, colleges and universities should increase the relevant education and training and guidance, improve the curriculum system, formulate a reasonable reward and punishment system, encourage college students to work hard and establish self-confidence.

**4.2 Set an example.** College students need to set up a sense of example, which can be found from people around them, or from great people in all walks of life and fields, as the wind vane and lighthouse in their minds; Colleges and universities should also strengthen the publicity and education of relevant examples and advanced models.

**4.3 Reinforce positive verbal persuasion.** Colleges and families should cooperate closely and carry out home-school cooperation. Teachers and parents should give college students positive and positive verbal persuasion, especially verbal persuasion based on facts, to strengthen their self-motivation and self-persuasion level, exercise and improve self-confidence, and further enhance their professional self-efficacy.

**4.4 Maintain a good physical and emotional state.** In the face of the pressure of study and student work, college students should find appropriate ways to relieve it. They can reduce the tension and promote the formation of positive and optimistic emotions of college students by telling, exercising, cultivating

hobbies and diverting attention.

#### REFERENCES

[1] Qian Yu. Survey and Countermeasures of College Students' Social Support [J]. Drama House, 2019(21):191.

[2] Di Min, Liu Hui. the application of professional Self-efficacy [J]. China Training, 2003(05):19-20.

[3] Ni Linying. An Empirical Study on Self-esteem, Social Support and Subjective Well-being of Higher vocational College Students [J]. Educational Academic Monthly,

2013(8):91-94.

[4] Jiang Hong, Zhang Yufeng, Zhang LAN. the relationship between general self-efficacy, social support and subjective well-being of middle school students [J]. Modern Preventive Medicine, 2013, 40(20).

[5] Li Huimin. the relationship between Social support and Mental health and personality characteristics of college students [J]. Chinese School Health, 2004, 25(3):263-264.

# Analysis of The Changes in The New Retail Framework

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**Abstract:** This article introduces the innovation of the new retail framework from three aspects: the front desk, the middle stage and the backstage. the new retail framework reconstructs the "people" at the front desk. "Goods-market" has realized the reform of marketing, market, circulation chain and production mode in the middle platform, and empowered and developed through infrastructure and emerging technologies in the background.

**Keywords:** New Retail, Consumer, Marketing, Transaction Scenario

## 1. INTRODUCTION

From the perspective of e-commerce, the traditional retail framework consists of three parts, namely, the transaction subject, the transaction matter and the trading market. the new retail framework is not to completely break the traditional retail framework, but to make a series of innovations based on the traditional retail framework. This innovation is mainly reflected in three aspects, namely, the foreground, middle stage and backstage of the framework.

## 2. FRONT DESK: RECONSTRUCTED PEOPLE, GOODS AND FIELDS

### 2.1 Consumer side: reshaping the portrait of consumers

In traditional retail, the production of new products is not centered on the needs of consumers, and there is no research on the needs of consumers. Therefore, it is usually difficult to get a portrait of consumers. In new retail, with the help of advanced data technology, consumers can be portrayed more clearly, including consumers' gender, age, income and other characteristics, until a completely clear consumer portrait can be formed. For brand merchants, the image of consumers is on paper, which is conducive to better market positioning, product positioning

and consumer positioning, and also enables brand merchants to carry out more targeted marketing and promotion to target consumers.

### 2.2 Trading commodity side: expanding new demand

In traditional retail, consumers' demands often pay more attention to price performance, product function, durability, etc. Generally speaking, consumers' demands are more focused on functional demands. In the new retail, consumers' demands have developed in two directions, one is the commodity aspect and the other is the content aspect. In terms of commodities, consumers pursue the service attributes and personalized characteristics of commodities on the basis of traditional demands for the function of commodities.

In terms of content, consumers' needs have begun to pay more attention to social experience, sense of participation and cultural identity. Consumers' social experience can be meeting friends, negotiating and dating in a coffee shop. That is to say, consumers not only consume coffee itself, but also pay more attention to the social experience other than the goods obtained in the process of consumption.

Generally speaking, in the framework of new retail, the needs of consumers have transitioned from the traditional functional demand for goods to the service attributes and personalized attributes of goods, as well as the social experience, sense of participation and cultural identity in terms of content. That is to say, in traditional retail, the functional demands of consumers are far greater than the demand for experience. In the new retail, consumers' experience demands exceed functional demands and occupy a dominant position.

### 2.3 Trading scenario: consumption scenarios are everywhere

With the rapid development of e-commerce, the consumption scenario of new retail is not



limited to traditional offline store sales, but also the online sales scenario is gradually deepening into every consumer group.

In the end, the new retail reconstructed the three elements of "people, goods and fields" from the front desk, and evolved from the past "goods-field-people" to "people-goods-field".

### **3. ZHONGTAI: IT HAS REALIZED THE TRANSFORMATION OF MARKETING, MARKET, CIRCULATION CHAIN AND PRODUCTION MODE.**

#### **3.1 New marketing: global marketing with consumer operations as the core**

In traditional retail, there are communication barriers between consumers and brands due to the asymmetry of information, which makes it impossible to effectively unify the demand of consumers and the supply of brands. In the new retail, data opens up the full link of consumer awareness, purchase, loyalty and sharing feedback, and realizes the visualization, traceable and optimization of data. It comprehensively opens up the link between brands and consumers, and finally realizes the global marketing of all-data, all-media, full-link and omni-channel.

#### **3.2 New market: a unified market based on the digital economy**

Transactions between subjects in the new retail scenario are no longer limited by the traditional business logic of region and business hours, but can be completed immediately anytime and anywhere, eventually forming a global, full-permeable and omni-channel digital unified market.

#### **3.3 New circulation chain: New retail service providers reshape the efficient circulation chain**

The new circulation chain is mainly reflected in four aspects, namely, new production services, new financial services, new supply chain comprehensive services, and new store operation services.

#### **3.4 New production mode: C2BSprom the birth of efficient enterprises**

In traditional retail, the production mode is usually from the front end of the supply chain to the back end of the supply chain. Manufacturers develop and design new products, purchase raw materials according to the designed new products, and then carry out the next step of production and manufacturing.

After the product is produced, the brand distribution, wholesale, advertising and marketing and other links finally reach us. Consumers.

In the new retail, the whole process is reversed. the link begins with the investigation of consumer needs, and then feedbacks the data to the brand, and finally reaches the producer. According to the collected customer needs, the producer designs and produces products that can effectively match the needs of consumers. the information flow of the production of this product has spawned a large number of efficient production enterprises from consumers to enterprises, thus truly realizing the retail mode of reverse traction production mode of consumption mode.

### **4. BACKSTAGE: INFRASTRUCTURE, EMERGING TECHNOLOGY EMPOWERMENT AND DEVELOPMENT**

The background of new retail includes these aspects: infrastructure, technology, digitalization, Internet of Things, artificial intelligence, etc., which jointly promote the development of new retail. the specific performance is,

#### **4.1 Infrastructure**

Infrastructure has added new entrances to new retail in terms of traffic; model innovation in logistics; continuous iterative upgrading of technology, and these changes have brought new changes and opportunities to the development of new retail.

#### **4.2 Emerging technologies**

##### **4.2.1 AR/VR**The consumption experience of combining reality and reality

VR, or "virtual reality" technology, immerses users in the three-dimensional dynamic reality created. AR is "augmented reality" technology, RuleIntegrate real world information and virtual world information "seamlessly". the consumption scenarios of this technology are concentrated in car test drives, shopping and other scenarios.

**4.2.2Sensors and the Internet of Things:** Improve the consumption experience in stores Its specific application scenarios in the store include that when consumers enter the store, they can match the customer's portrait, interest preferences and other information through face recognition, and then target the intelligent

shopping guide and push products for the customer. When customers buy goods, the store can also record the customer's browsing through the heat sensor. Record, which is convenient to match in time for the next visit. Finally, automatic settlement is realized when customers choose satisfactory goods and leave the store.

4.2.3 Artificial intelligence: throughout the whole process of new retail

Artificial intelligence (AI) is a technology that uses computer science to simulate the information process of human consciousness and thinking. Artificial intelligence can help the retail industry predict demand and automate operations. Large e-commerce platforms at home and abroad have begun to apply artificial intelligence, such as reducing manual operations in promotion, commodity categories, distribution and other links, automatically predicting customer orders,

optimizing warehousing and logistics, setting prices, and formulating personalized promotion means.

#### REFERENCES

- [1] Zheng Guihua, Li Heli. Problems in the transformation of the physical retail industry into "new retail" And countermeasure research [J]. *Economic Forum*, 2017(5):72-75.
- [2] Secretariat of China Circulation Thirty Forum, Editorial Department of China Circulation Economy. Follow Alibaba and Bailian "marriage" to see "new retail"[J]. *China's circulation economy*, 2017(3):124-128.
- [3] Hong Tao. "New retail" and the future trend of e-commerce [J]. *Business Economics Research*, 2017(8):52-55.

# Analysis on The Employment Discrimination of College Students Under the New Situation

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**Abstract:** In recent years, with the continuous expansion of the enrollment scale of ordinary colleges and universities in China, the number of college graduates has also increased year by year, followed by the emergence of difficult employment of college students, and has become the focus of social attention. And the recent emergence of college students' employment discrimination [1] Questions become the focus of the focus. In the face of the increasingly serious employment discrimination problem, both college students themselves, universities and relevant government departments are facing great pressure. the government, universities and college students themselves should strive to find solutions.

**Key words:** College Students; Employment Discrimination; Measures

## 1. INTRODUCTION

With the expansion of college enrollment and the proliferation of college students and college graduates, college graduates have changed from social elites to ordinary workers in the society. Today, when employers occupy the absolute advantage of employment, college students also face many problems in job hunting.

## 2. UNDER THE NEW SITUATION, COLLEGE STUDENTS' EMPLOYMENT, DISCRIMINATION PROBLEMS

### 2.1 Sexism

Gender discrimination is the longest and most prominent problem among all kinds of discrimination, and it is also the most concerned and sensitive topic. Some units clearly recruit only boys; under the same conditions; under equal or better conditions, girls are rejected by the employer for the development of family and fertility achievements.

### 2.2. Academic discrimination

In recent years, with the continuous expansion of college enrollment, the number of undergraduate students and graduate students are constantly "climbing", and the number of junior college students is even more amazing. Under the condition of sharp contradiction between supply and demand in the labor market, many employers have serious misunderstandings in the concept, blindly pursuing high education, and high consumption of talents.

### 2.3. Health discrimination

The Law of the People's Republic of China on the Protection of Disabled Persons stipulates that all kinds of organizations shall arrange employment for disabled persons in a certain proportion, and shall not discriminate against disabled persons in employment. the reality is that the employment discrimination of the disabled is very prominent. Some enterprises with good benefits would rather pay money to the relevant departments (who use the money to arrange the disabled to other units or grant subsidies) than to arrange the disabled.

### 2.4 Geographical restriction and discrimination of household registration

It is generally believed in economics that "things need to circulate, and the faster they circulate, the more value they achieve" [2]. College students are talents, of course, but also a scarce resource, and this scarce resource needs circulation, otherwise it will cause idle resources and waste of talents. the domicile discrimination is actually the discrimination of one group against another group. There are two kinds of discrimination in household registration in China, such as discrimination against foreign population. Many enterprises, public institutions, administrative organs and even judicial organs regard local household registration as a condition for hiring or preferential employment. Even civil servants are subject to household registration restrictions, and many jobs in big cities are not

allowed to involve foreigners, which is household registration discrimination.

### **3. ANALYSIS ON THE CAUSES OF EMPLOYMENT DISCRIMINATION AMONG COLLEGE STUDENTS**

#### **3.1 Affected by the overall situation, the contradiction between supply and demand is prominent.**

From the current situation of China, China is still a developing country, China's national economic structure is undergoing strategic structure adjustment, industrial structure adjustment resulting in the labor market overcrowding situation. [3] At the same time, the growth rate of graduates is far faster than the economic development speed of the same period, leading to the growth rate of social aggregate demand is far lower than the supply rate of talents in the labor market, and there is a serious contradiction between supply and demand in the labor market.

#### **3.2. there are misunderstandings in the concept of employers**

Many units of choose and employ persons in the concept of choose and employ persons exist misunderstandings, blind pursuit of high education, talent high consumption phenomenon. Do not "not name names" when hiring employees. the current employment situation is that the supply of the number of graduates is seriously greater than the market demand, and the employers are in an absolute buyer's market. In order to pursue the maximization of their own interests, higher requirements will be put forward when recruiting employees.

#### **3.3. College students' own factors**

Most college students relax their requirements after entering the university. Some people lose their own direction in the university, addicted to the Internet, love, making friends and other things all day long, professional knowledge is not solid, narrow knowledge, poor practical ability, it is difficult to enter the working state to the work unit.

### **4. MEASURES TO DEAL WITH EMPLOYMENT DISCRIMINATION OF COLLEGE STUDENTS**

#### **4.1. college students**

college students should establish a correct employment mentality, correct employment.

College students should take employment discrimination as the driving force, strive to change themselves, and face some unfair phenomena in the society with a positive and healthy attitude. Strive to improve their own quality and competitiveness; strive for extensive knowledge, reasonable knowledge structure, strengthen their scientific and cultural literacy; have innovative spirit and flexible way of thinking, do people, business, time; to face all forms of challenges in the process of employment correctly, really play to their advantages. with the help of social channels, active employment. College students job-hunting is the result of human capital and social capital. Human capital includes one's knowledge, experience, ability and so on. Social capital includes all kinds of interpersonal relationships; If there are conditions, you may wish to use some of the social relations of relatives and friends to recommend and self-recommendation. Through the recommendation of acquaintances, employers can get to know you well and evaluate you more accurately. At the same time, grasp their own job intention, take the initiative to talk with the employer, understand where the concerns of the employer exist, dispel the concerns and worries of the employer, and confidently state their strengths and advantages to the employer.

#### **4.2. Government**

Strengthen the construction of laws and regulations, and strengthen policy guidance. the government should coordinate the problems related to equality and justice through effective legal system and policy guidance; use the institutional compensation measures; and try to solve the employment discrimination in the employment process of college graduates. We will deepen restructuring and create a favorable employment environment. the relevant departments are required to establish a complete set of employment service system for college students, especially to change their ideas, pay more attention to this system, and invest greater material and financial resources. We will deepen structural reform and create a good employment environment. Along with the deepening of the economic system in our country and the gradual change of elite education to mass education in our higher

education, we must emancipate a thought further, change ideas, deepen the employment system of college graduates and the reform of the social employing system; Further change the concept of graduates, establish social concern, market orientation, government adjustment, school recommendation, students and employers two-way choice, and strive to achieve college graduates lake, smooth employment; Further deepen the reform of the labor and personnel system and the household registration system, establish and improve the employment security system for graduates, open the employment market for graduates, break local protectionism, and dilute the restrictions of household registration and geographical factors; We will use the market economy system to further standardize and improve the talent market, establish rules for the talent market, optimize the labor supervision system, and establish a labor arbitration system. In order to protect the legitimate rights and interests of both sides of the labor relationship, maintain the fair market order, make the supply and demand channels unimpeded, the supply and demand process routinized, ensure that employment discrimination does not exist, and enable college graduates to find employment smoothly.

#### **4.3. Ordinary institutions of higher learning**

as the central link of talent training, institutions of higher learning should establish correct and scientific ideas of running schools, guide the employment and social needs, and establish the scientific development concept of higher education. Change ideas and cultivate compound talents. Strengthen education to help students establish a correct

view of employment. Schools should deepen the reform of disciplinary structure and talent model, improve the adaptability of graduates, and modern society needs various types and levels of talents. In order to adapt to social development, first of all, colleges and universities should adjust the professional structure of disciplines according to the trend of economic and social development, as well as the demand of economic structure, industrial structure and job market for college graduates. Adjust the structure and mode of personnel training; Establish an employment-oriented view of running a school and a high quality view of meeting social needs; According to the planning of the political, economic and cultural development of the country and society, we should study the current situation of talent demand, and vigorously support and develop the professions that are urgently needed in various sectors of society or have great social demand potential.

#### **REFERENCES**

- [1] Labor market theory: Employment discrimination refers to the labor market can not treat individuals or some groups with a fair and fair attitude, with some characteristics, such as nationality and gender. And skin color, etc.
- [2] Song Tao, Political Economy, 5th edition, Renmin University of China.
- [3] Weng Kunhai, Such As and Effective Implementation of Graduate Employment Guidance by Government Talent Service Agencies, Employment of College Students, 10th issue, 2005.

# A Preliminary Study of Standardized Basketball Training for Young Students

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**Abstracts:** Training young basketball players is an important task that has been in front of us for many years. It can be seen that the importance of the training of young basketball players, young basketball players from a young age should be standardized training; standardized training is to play an excellent technical foundation, strengthen physical quality, grasp the cultivation of tactical awareness, and so on, of which the standardized training is mainly to grasp the technical action specification and the use of technical actions in these two aspects, how to improve the quality of technical standardized training is in front of us urgently need to solve the problem.

**Keywords:** Youth Basketball; Standardized Training; Technique

## 1. INTRODUCTION

The so-called technical movement standardization refers to the basic technical movements of the norms, essentials, and requirements; the so-called technical movement application refers to the basic technology learned through practice to test, consolidate, and improve. Youth training lays the foundation of the period; paying close attention to the standardization of technical movement is extremely important, as it lays a solid foundation for their future growth. the following is a brief analysis of three aspects.

## 2. TECHNICAL TRAINING:

Youth basketball player training is mainly divided into dribbling, shooting, passing and receiving defensive techniques, and the like; this period of training is extremely important from a young age to establish the correct technical power stereotypes; therefore, requires us all to have a long-term training plan. There must be requirements for every small technical aspect. At first, we must have a complete and precise explanation of the

movements learned by the players, and make a correct demonstration in the explanation, demonstration or look at pictures video-based, and then let the players imitate and experience the movement practice, pay attention to the critical points of the movement and the difficult points. In order to make movement mastery more accurate, it can be decomposed to practice a single movement so that the movement achieves a degree of proficiency and the correct stereotypes are formed. At the same time, according to the requirements of this stage of the action, the organization of the players to carry out quality and quantity of repeated practice, but also to strengthen individual guidance, mutual observation, and help between players; in short, there are many training methods. For example, dribbling technology in advance of the change of direction dribble, in the process of practice, the requirements of dribbling fast, low center of gravity of the body when stopping in a hurry, stable; change of hand should be fast, in the change of hand to send the ball to the position, the change of hand to the end of the following technical action should be connected immediately after the end of the following technical action. These are a complete set of basketball dribbling bodies in front of the change of direction of the technical action; similar to this technical action, many require us to be good at the usual training work to carefully observe the completion of the technical action of each player, and constantly on their completion of the technical action of the newer and higher requirements.

## 3. PHYSICAL TRAINING

Physical training in adolescence should first be based on the characteristics of the physiology and psychology of the regular form of growth and development.

3.1 bone characteristics: This period is the period of bone growth; height growth is faster,

there is more gel in the composition of the bone, the elasticity and plasticity of the bone are more significant, the bone is not yet wholly ossified, the bone frame is soft and easy to deformation. Therefore, it is challenging to carry significant weight for strength training. If someone carries a large weight, it is likely to promote the early ossification of cartilage, which affects the growth of height and quickly causes spinal curvature and deformation.

3.2 muscle characteristics: This period of muscle development lags behind the growth of bones. Muscle water is more and protein is less; muscle is easy to dehydration and fatigue, and overloading is easy to injury. This period can be used to stretch the limbs of the exercises and lighter weight-bearing exercises; it is best to do more speed, sensitivity, response, and other qualitative exercises.

3.3 circulatory and respiratory system characteristics: In this period of adolescence, the thorax is small, with weak respiratory force, small lung capacity, fast respiratory rate, exercise mainly by increasing the respiratory rate of force mouth ample lung ventilation, the heart's neuromodulation is not perfect, the heart fibers are thin, which increases the burden on the heart.

Therefore, when arranging physical training, it is essential to develop a reasonable amount of exercise according to each adolescent period's physiological and psychological characteristics.

#### 4. TACTICAL AWARENESS TRAINING

this period of young people, based on the overall improvement of basic skills, we must have a purpose to cultivate tactical awareness training. Tactical awareness training is long, meticulous, and highly patient work. Initially, we should first explain the purpose of tactical awareness, that is, its importance. Let the

players know how to run, the purpose, why run like this, what to run over, and so on. Training content can be easy or difficult; the purpose of training is to let the players be flexible in developing plans and content and to consider the entire range. It is more important to train the players to use their brains because, this time, the players will ask many questions; some people need to coach one by one, have the patience to answer the questions, and practice more encouragement in the process of praise. Tactical awareness training is a critical stage, which requires us to help our players achieve proficiency and application as soon as possible. Otherwise, it may not achieve the expected results, affecting future players' growth and development.

With the increasing progress of modern science and technology, the continuous development of sports training, sports training level, and sports training methods in the continuous development, we are required to do an excellent job in training at the same time but also pay attention to the player's intelligence, ideological and moral character and the cultivation of the quality of the will and so on, we are required to strengthen theoretical learning, and constantly improve their business level for the future work to lay a good foundation.

#### REFERENCE

- [1] Kwai-rong Lu. Rhythm of Basketball and Countermeasures to Improve Its Control Level [J]. Wuhan Journal of Wuhan Institute of Physical Education and Sports, 2005(10):92-94.
- [2] Peng Yanchun. A systematic study on the rhythm of basketball games [J]. Journal of Capital Institute of Physical Education. 2003(2):49-52.

# Research on Traffic Flow Data Cleaning Method

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**Abstract:** Enough and accurate traffic flow data was essential guarantee to realize Intelligent Transportation Systems. Many quality problems were existed inevitably in detected data, including inefficacy, redundancy, error, missing, time dot excursion etc. On the basis of sufficient study and analysis for the influence reasons of data quality, the definition of data cleaning was proposed, and the cleaning rules and cleaning steps of “dirty data” were studied at the same time. Then the proposed cleaning rules were calibrated with the detected data of loop vehicle detector. It is pointed that, the recognition rates of “dirty data” is up to 90%. the results show that, “dirty data” can be effectively detected to help to increase the validity and veracity of the following data mining according to cleaning rules and cleaning steps.

**Keywords:** Traffic Flow; Its; Data Quality; Data Cleaning; Rules

## 1. INTRODUCTION

High-quality traffic flow data are the basic guarantee of right decisions for Intelligent Transportation Systems (namely ITS). Loop detector is relatively inexpensive, which is just adapted to the situation of China. However, because of large detected data quantity and short detected period, the detected data are often accumulated to mass data in traffic control centers. the detected data, which can timely, roundly, and reliably indicate the traffic state, should be analyzed fast, effectively and deeply to provide a basis for traffic control, traffic management, transport planning etc. by making the mass dynamic traffic data into the main body of ITS data. As the loop detector is out of work, or the faults caused by the detectors and transmission equipment etc. happened, various quality problem are existed inevitably in the detected data. There are a number of quality problems

in the data collection inevitably, as well as the search process of data mining would be misled by problem data. Therefore, it is necessary to carry out data cleaning in order to improve the quality of the data set. And then the validity and veracity of followed data mining are improved [1-9]. In view of this, the data pre-processing is studied both at home and abroad. Traffic problem data are divided into three types: missing data, distortion data and abnormal data, and correspondingly, the cause, recognition and modification of problem data are proposed in literature [10]. The method of judging abnormal data of expressway traffic flow is made in the literature. the ITS data quality control algorithms has been put forward in literature]. A theory of traffic flow data quality testing has been expressed in the literature. And cleaning rules of section traffic data are proposed in the literature, which is suitable for online applications. However, only a few data quality issues are studied in the above-mentioned documents, also various quality problem are often existed in the detected data simultaneously, and there is no complete set of rules for cleaning data quality management. Combined with above-mentioned research results, the definition and rules of data cleaning in traffic flow are studied, in addition, the validity of data cleaning rules is validated in this paper.

## 2. CONCEPT OF DATA CLEANING

From character of problem data, it can be divided into two types: normal data quality problem and abnormal one.

Quality problems of normal data, including noise data, are inevitable quality problem, which are caused by large, puny and uncontrollable random factors, or accidental factors (short-time traffic flow fluctuation etc.) in detection process. Quality problems of abnormal data, including invalid, redundancy, errors, time-point shift, missing, and so on, are



easy to recognize and reject, which are caused by small but remarkable, controllable systematic factors in detection process. If the problem data are not modified or smoothed, these are used in data mining directly, the added quality problem will be caused in the following application. To improve the data quality, the definition of cleaning rules in the field of traffic flow is studied as followed.

### 3. GENERAL STEPS OF DATA CLEANING

The process of data cleaning is divided into 5 phases: analysis data attributes, determined cleaning rules, calibration cleaning methods, execution cleaning components and data updating. Cleaning rules is the key of cleaning process of "dirty data".

Whereas the incorrect, redundant or loss data are a frequent occurrence, the cleaning rules about above-mentioned types of dirty data are given. the smoothing method of noise data has been widely used, including fixed time average method, moving average method, exponential smoothing method, Kalman filter method etc., which would not be introduced in detail in this paper.

#### 3.1 Attribute analysis of "dirty data"

3.1.1 Error data. When the traffic detectors are out of work, the detected data are usually wrong. These data are not expected or not satisfied within the framework of existing rules and principles. For example, when the flux of traffic flow is less, but the higher lane-occupancy, the data is obviously wrong.

3.1.2 Redundant data. For a single detector, the similar duplication data which are collected are defined redundant ones; for multi-detector, because of too much density in the same road or adjacent sections, the detected data are impacted directly with vehicles overlapping and redundancy, so the redundant data are defined.

3.1.3 Loss data. As the scanning frequency of detector is not fastness, transmission or storage of equipment is failure, the operation is error, and the detector can not be detected the correct vehicles because an over-density of vehicle, and so on, the dynamic traffic data can not be strictly uploaded with the specified interval time, then the data is lost.

#### 3.2 Cleaning rules

In order to clean the ITS data, the incorrect,

redundant, and missing data should be firstly identified. As the error data are often expressed in outlier, therefore, the purpose of clean data can be reached by the detection and removal of outlier in source point. Then the quality of the data in data sources can be enhanced. In the area of traffic flow, the tested data is high-dimensional data, which have a number of attributes. Taking the occupation, speed, traffic flow for example, if a traditional outlier detection algorithm is used, for the same goal of multi-attribute data sets, each attribute can be only detected one by one, then the time complexity is increased, as well as the inter-related of three attributes is separated. So the algorithm based on similar coefficient sum is proposed in this paper.

#### 3.3 Cleaning steps of "dirty data"

The cleaning of the raw data which are obtained on the detector can be divided into two major steps, that is, the raw data are distinguished in accordance the above-mentioned rules, and problem data are modified according to appropriate algorithm. the concrete cleaning steps are shown in Fig. 1.

### 4. CONCLUSIONS

The error, loss, redundant data are cleaned effectively in this paper, and the quality of data is improved significantly, thus the effectiveness and accuracy of data mining are enhanced. However, the three mentioned "dirty data" can be only carried out by the cleaning rules, the time-drift data can not be cleaned, so there are still some limitations in the rules.

Error data can be regarded as the isolated points, but all outliers are not incorrect data. Whether the outlier is incorrect data or not is judged combined with threshold theory and the traffic flow theory. However, an algorithm for outlier detection based on similar coefficient sum is proposed in this paper, the time complexity is bigger, so the algorithm with smaller time complexity is need to be studied. With difference of the road in the level, the nature, control and the type of traffic-related parameters, the requirement of threshold is different, so threshold selection will be needed for judging whether the outlier is error data or not. It is best that threshold is determined based on the statistical distribution

of each traffic parameters.

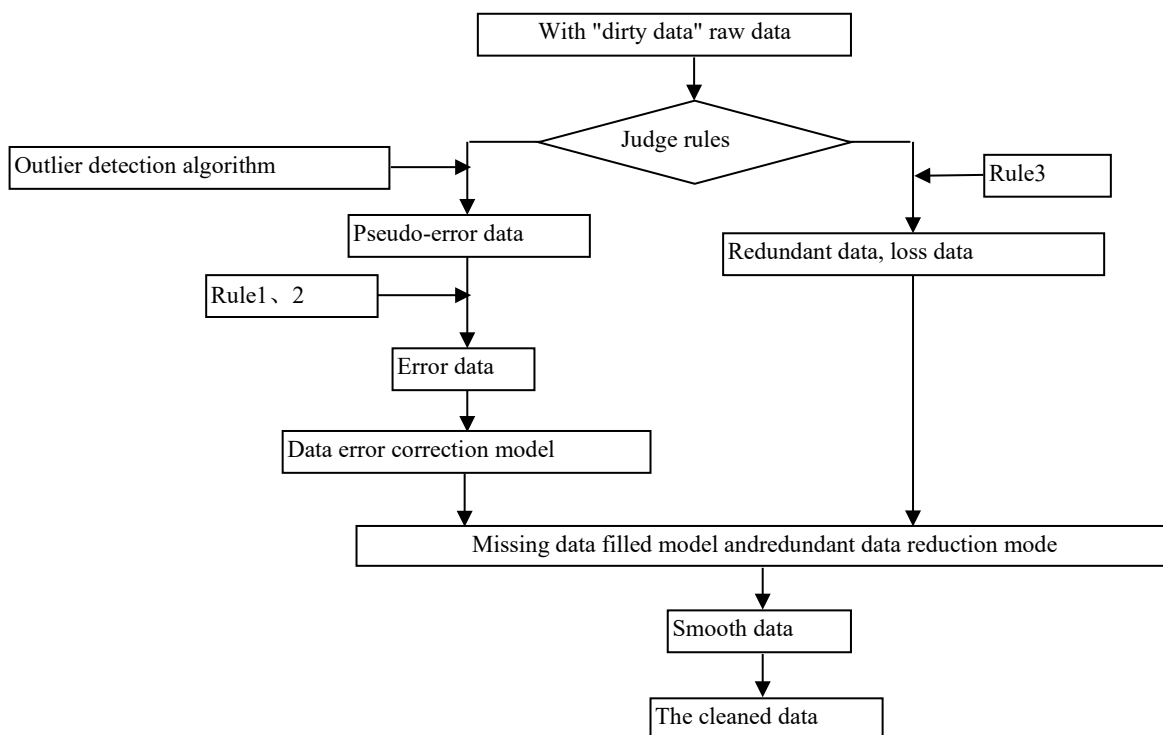


Fig. 1 Cleaning steps

**REFERENCES**

[1] Daniel L. Gerlough, Matthew J. Huber. Traffic flow theory [M]. Beijing: China Communications Press, 1983.

[2] Yang Zhaosheng. Technology and application for basic traffic information [M]. Beijing: China railway publishing house, 2005.

[3] WANG Xiao yuan; JUAN Zhi cai; JIA Hong fei; PIAO Ji nan. Study of a statistical method of change-point to analyze traffic flow breakdown [J]., China Journal of Highway and Transport, 2002, 15(4):69-74.

[4] Zhang Jinglei, Wang Xiaoyuan. Research. Progress of Traffic Incident Automatic Detection Algorithms [J]. Research Progress of Traffic Incident Automatic Detection Algorithms, 2005, 29(2):215-218.

[5] WANG Xiao yuan; JUAN Zhi cai; JIA Hong fei. Micro-simulation models of traffic flow of developing and evaluating ITS [J]. Journal of Traffic and Transportation Engineering, 2002, 2(1):64-66.

[6] WANG Xiao yuan; JUAN Zhi cai; Piao Ji nan; JIA Hong fei. A Statistical Theory of Change point with Local Comparison and its

Application in Studing Traffic Flow Breakdown [J]. Journal of Highway and Transportation Reseach andk Development, 2002, 19(6):112-115.

[7] WANG Xiao-yuan ZHANG Jing-lei ZHANG Kai-wang WU Lei2. Study on Traffic Flow Forecasting Method Based on Non-parameter Regression Spline Fitting [J]. Computer Engineering and Applications, 2006(26):218-220.

[8] WANG Xiao-yuan; LIU Hai-hong. Short-time Traffic Flow Forecasting Based on Projection Pursuit Auto Regression [J]. Systems Engineering, 2006, 24(3):20-24.

[9] Jiang Guiyan. Technologies and applications of the identification of road traffic conditions [M]. Beijing: China Communications Press, 2004, 103-113.

[10] JIANG Gui-yan; GANG Long-hui; ZHANG Xiao-dong; WANG Jiang-feng. Malfunction identifying and modifying of dynamic traffic data [J]. Journal of Traffic and Transportation Engineering, 2004, 4(1)121-125.

# Research on the Integrated Application of Big Data and Blockchain Technology in the Field of Accounting

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**Abstract:** Through in-depth analysis of the complementarity of big data and blockchain technology, as well as practical application cases in modern corporate accounting, this paper verifies that the integrated application can significantly improve the efficiency and accuracy of accounting work, reduce financial risks, and enhance decision-making efficiency. It provides enterprises with new perspectives and tools to cope with complex business environments and data processing needs.

**Key words:** Big Data; Blockchain Technology; Accounting; Integration

## 1. INTRODUCTION

In the digital era, big data and blockchain technology are penetrating into various industries with their unique advantages and potentials. As the core of business operations, the field of accounting also urgently needs technological innovation to cope with massive data and complex business scenarios. This research is dedicated to exploring the integrated application of big data and blockchain technology in the field of accounting, aiming to enhance the overall effectiveness of accounting work.

## 2. CURRENT SITUATION ANALYSIS

### 2.1 Application Status of Big Data Technology in the Field of Accounting

Nowadays, big data technology has become an indispensable tool in the field of accounting. Through big data technology, enterprises can efficiently process and analyze a large amount of financial data, thereby gaining a deeper understanding of their business status and financial risks. This not only helps enterprises discover and solve financial problems in a timely manner but also provides strong support for their strategic decision-making.

In addition to financial analysis, big data

technology also plays an important role in budget planning and cost control. Enterprises can use big data technology to predict market trends and formulate more reasonable budget plans. Meanwhile, by monitoring cost data in real-time, enterprises can adjust cost control strategies in a timely manner to improve financial management efficiency.

However, the application of big data technology also faces some challenges. Firstly, processing massive financial data requires powerful computing and storage resources, which undoubtedly increases the operating costs of enterprises. Secondly, data security and privacy protection are also key issues that need to be focused on in the application of big data technology.

### 2.2 Application Status of Blockchain Technology in the Field of Accounting

Although the application of blockchain technology in the field of accounting started late, its unique advantages have attracted widespread attention. Currently, blockchain technology is mainly used in accounting records and audit trails to ensure the authenticity and integrity of accounting information.

Through blockchain technology, enterprises can securely store every accounting record on a distributed ledger, using encryption algorithms to ensure data immutability. This not only greatly improves the credibility of accounting information but also brings revolutionary changes to the financial management of enterprises. Meanwhile, blockchain technology can also achieve real-time audit trails, helping enterprises discover financial problems in a timely manner and make rectifications.

In addition to accounting records and audit trails, blockchain technology has also shown

tremendous potential in supply chain management and risk control. Through blockchain technology, enterprises can monitor every link of the supply chain in real-time, ensuring the safety and efficiency of the supply chain. At the same time, by utilizing the transparency and traceability of blockchain technology, enterprises can better identify and control financial risks.

However, the application of blockchain technology also faces some challenges. Firstly, the decentralized feature improves data security but also increases data management and maintenance costs. Secondly, the popularization and promotion of blockchain technology still require time and resource investment.

### **3. INTEGRATED APPLICATION OF BIG DATA AND BLOCKCHAIN TECHNOLOGY IN ACCOUNTING**

#### **3.1 Integration of Data Collection and Storage**

In modern corporate accounting, the accuracy and security of data collection and storage are crucial. The integration of big data and blockchain technology has brought innovation to the collection and storage of accounting data. Enterprises can efficiently collect financial data from various sources using the data capture and integration capabilities of big data technology, such as sales revenue, cost expenditure, and inventory changes. After preliminary cleaning and organization, these data are stored and verified through blockchain technology. In addition, the smart contract function of the blockchain can automatically execute data verification and recording tasks, reducing the possibility of human error and fraud.

#### **3.2 Integration of Data Processing and Analysis**

In terms of data processing and analysis, big data technology and blockchain technology demonstrate strong synergies. The former excels at mining valuable information from massive data, such as market trends and consumer behavior, while the latter provides traceability and verifiability for these data.

Through deep analysis of big data technology, enterprises can discover potential business opportunities, identify financial risks, and make wiser decisions. At the same time,

blockchain technology can trace the source and change history of data, ensuring the accuracy and reliability of data analysis.

#### **3.3 Integration of Data Transmission and Security**

In data transmission, the combination of the two also shows significant advantages. Big data technology can efficiently encrypt and compress the transmitted data, ensuring the security and integrity of the data during transmission. Blockchain technology provides additional verification and recording functions for data transmission through its decentralized characteristics.

Through the distributed ledger technology of the blockchain, every data transmission can be safely recorded and verified, effectively preventing the risk of data leakage and tampering. This integration not only guarantees the secure transmission of corporate accounting data but also enhances data credibility and transparency.

#### **3.4 Case Study**

JD.com's integration of big data and blockchain technology in the field of accounting demonstrates how these advanced technologies can improve the efficiency and transparency of financial management.

##### **3.4.1 Application of Big Data Technology in Accounting**

JD.com's Real-time Data Warehouse is a data storage and processing platform based on big data technology, which can collect, integrate, and analyze financial data from various parts of the world in real-time. These data include, but are not limited to, key financial indicators such as sales revenue, cost expenditure, and inventory changes. Utilizing efficient data processing and analysis capabilities, JD.com can quickly generate various financial reports, providing accurate feedback on financial status and operating results to management.

In addition, big data technology also helps JD.com with budget control and risk management. By analyzing historical financial data, combining market trends and internal operations, JD.com can more accurately formulate budget plans and discover and respond to potential financial risks in a timely manner.

##### **3.4.2 Application of Blockchain Technology in Accounting**

JD.com utilizes the distributed ledger feature

of blockchain technology to encrypt and store key accounting data. This ensures data authenticity and integrity because every accounting record is permanently and securely stored on multiple nodes, and any data tampering will be immediately detected by other nodes in the network.

JD.com's supply chain involves many suppliers and partners, and traditional accounting methods are often inefficient and error-prone when dealing with these complex transactions. Blockchain technology provides a decentralized and transparent trading platform where all transaction records are public, verifiable, and tamper-proof, greatly improving the accuracy and efficiency of supply chain accounting.

In addition, in the "JD Finance - Huatai Asset Management No. 19 JD Baitiao Accounts Receivable Credit Asset-Backed Special Plan", JD Finance, Huatai Securities Asset Management, and Industrial Bank jointly utilized blockchain technology to achieve real-time sharing and confirmation of data information flows such as underlying assets, cash flow, products, and accounting among multiple participants, including the original equity holder, manager, and custodian. This not only improves information transparency but also reduces credit risk.

The application of these innovative technologies not only enhances JD.com's competitiveness but also brings new development opportunities to the entire accounting industry.

#### 4. CONCLUSION AND DISCUSSION

Through theoretical analysis and case studies, this study verifies the strong potential and practical benefits of combining big data and blockchain technology. The research results

show that the integrated application of big data and blockchain technology not only significantly improves the efficiency and accuracy of accounting work but also excels in reducing financial risks and enhancing decision-making efficiency. This finding provides enterprises with new perspectives and tools to cope with complex business environments and data processing needs. Despite certain limitations, it points out the direction for technological innovation and efficiency improvement in the field of accounting, which has important theoretical and practical significance.

#### REFERENCES

- [1] Dai Yu. Research on the Application of Blockchain to Management Accounting in the Era of Big Data [J]. *Intelligent Computers and Applications*, 2020(6):105-108.
- [2] Wei Mingying. Innovation and Application of Enterprise Management Accounting Based on the Era of Big Data [J]. *China Market*, 2020(15):180-181.
- [3] Tang An, Hu Wenwei. Innovation and Practice of Management Accounting in the Era of Big Data: From the Perspective of Business-Finance Integration [J]. *Prices in China*, 2021(5):110-112.
- [4] Jiao Yuejun. Research on the Transformation Strategy from Financial Accounting to Management Accounting in the Context of Big Data [J]. *Accounting Learning*, 2021(2).
- [5] Yan Hui. Discussion on the Integration Development Path of Enterprise Financial Accounting and Management Accounting in the Era of Big Data [J]. *Business Economic Research*, 2021(15).

# Research On the Development of College Campus Football Under the Background Of "Healthy China"

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**Abstract:** The strategy of "Healthy China" provides inexhaustible power for the popularization and development of college football in the new era of our country and has profound significance to improve physical quality of young people in our country. However, at present, there are many problems in the promotion and development of campus football in our country. There is a great contradiction between "healthy China" and the low level development of campus football in colleges and universities. How to carry out campus football activities under the guidance of "Healthy China 2030" plan has become a topic of close attention of physical education teachers in colleges and universities. In this paper, the relationship between "healthy China" and college campus football and the specific development of ideas are elaborated.

**Key words:** Healthy China; College campus football; Development research

## 1. INTRODUCTION

The Outline of "Healthy China 2030" has pointed out the right direction for China's healthy China construction. Participation in football can effectively enhance people's heart and lung function, exercise physical coordination, and enhance community awareness. Campus football is led by the Ministry of Education, and all students are the main body. On the one hand, it plays a role in exercising students' body, and on the other hand, it provides a channel for the country to select football talents. the physical health of college students is the key part of the Outline, and the development of campus football plays an important role in improving students' sports cognition and enhancing their physical quality.

## 2. ANALYSIS OF THE RELATIONSHIP BETWEEN "HEALTHY CHINA" AND

## COLLEGE CAMPUS FOOTBALL

In the "Healthy China" strategy, the core purpose is to improve the health of the whole people. College students are full of vitality and are the future pillars of national construction. the health level of college students will directly affect the realization of the Chinese dream of the great rejuvenation of the Chinese nation [1]. Therefore, the promotion and development of college campus football is the premise and basis for the promotion of "healthy China" strategy, the two complement each other and promote each other. At the same time, combined with the reality of the promotion and development of campus football in China, the strategy of "healthy China" and the low level of campus football development in China have become an important contradiction affecting the health level of the whole people. It is mainly reflected in the rigid management mode of college campus football, many system loopholes, and single supervision mode, which lead to greater resistance to the promotion and development, which is not conducive to the implementation of the construction of "healthy China".

## 3. DEVELOPMENT OF UNIVERSITY CAMPUS DEMAND UNDER THE BACKGROUND OF "HEALTHY CHINA"

### 3.1 Guiding ideology for the promotion and development of college campus football

College campus football is an effective way to enhance the physical quality of young students, and provides football talents with an opportunity to show their professional skills. If we want to realize the large-scale promotion of college campus football, we must put the national policy guidelines in the first place, and from the perspective of health, analyze the

current national sports situation, integrate all social levels, and improve the awareness of sports. the development of college football in China is unbalanced and inadequate, and there are problems in the aspects of development goal, system and spirit. In this regard, colleges and universities should take the Outline as the guiding ideology, increase the investment in football fields and facilities, improve the management system, attach importance to the education of sports spirit, strengthen supervision, encourage students to actively participate in football matches held by provinces and cities and regions, expand the influence of football on campus, and effectively promote the promotion and development of football on campus.

### **3.2 Combine the "Healthy China" strategy with the physical health indicators of college students**

Under the guidance of the National Students' Physical Health Standard, the students' physical health is evaluated, and the students' physical health is included in the students' comprehensive quality and academic quality assessment, covering two aspects of body form and body function. Among them, the body shape includes height and weight, and the body function includes 50 meters running, 800/1000 meters running and other items. Football training at different levels is arranged according to the physical conditions of college students in different grades, students' physical fitness is evaluated based on the theory of "healthy China", football basic teaching is provided for students, and the evaluation work is done well, so as to promote the development of college campus football [2].

### **3.3 Enhance the participation of college teachers and students in campus football**

Compared with other campus sports in colleges and universities, college campus football has a remarkable appeal and influence, and is a ball game favored by the majority of college students. Football is conducive to strengthening students' physique, forming good living habits, and exercising their spiritual will. In the process of teamwork, it improves students' language communication ability, anti-frustration ability, and training their thinking ability. In this regard, colleges and universities should vigorously enhance the popularity of campus football, encourage

students to actively participate in campus football, vigorously publicize the benefits of football on the body, and popularize information by means of publicity column posters, campus radio, campus newspapers, official websites of colleges and universities and wechat public accounts. It can also establish cooperation with local enterprises to organize campus football games, invite audiences to watch, and broadcast in real time on multimedia devices in the classroom, and be explained by physical education teachers in real time, so as to achieve the purpose of expanding the football population.

### **3.4 Include the sports public service system to expand its influence**

The influence of college campus football can not only be limited to the scope of colleges and universities, it should be incorporated into the sports public service system, trigger the football boom in cities and countries, and achieve the effect of national sports. With the advancement of China's urbanization process, the employment competition has become increasingly fierce, resulting in chronic diseases of the digestive system, cervical spondylosis, and cardiovascular diseases. Driving the general public to participate in football is conducive to the prevention of diseases, the realization of health intervention, and also provides a mass foundation for the implementation of the "healthy China" strategy. In addition, since the football atmosphere around universities is closely related to the promotion and development of campus football, its inclusion in the sports public service system can promote the further optimization of public infrastructure and promote the improvement of the national economic level to a certain extent.

### **3.5 Construct "smart physical education classroom" and innovate teaching mode**

With the rapid development of science and information technology in our country, various online course platforms emerge in an endless stream, and "smart physical education classroom" has entered the historical stage, with common college physical education, wisdom tree and so on. On the one hand, such platforms, combined with big data and cloud computing technology, can always monitor students' physical conditions and sports conditions, and formulate targeted football

fitness programs for students, provide students with systematic campus football training guidelines, and realize the large-scale popularization of college campus football. On the other hand, the smart sports classroom platform also has a data sharing function, and teachers can share learning materials such as football training methods and skills, and how to adjust breathing during sports with students in the "smart sports classroom". In addition, there are many courses shared by professional football teachers online, so that teachers and students can learn together, which effectively solves the problem of lack of professional football teachers in economically backward areas. It is a new reform of football teaching mode and provides greater possibilities for the realization of the strategy of "healthy China" [3].

#### **4. CONCLUSION**

To sum up, the promotion and development of college campus football is related to the improvement of the physical level of youth groups, and provides the basic guarantee for the realization of the goal of "healthy China", which is the need of a powerful country. In this regard, colleges and universities should recognize the relationship analysis between "healthy China" and college campus football, take the "healthy China" strategy as the

guiding ideology, combine the physical health indicators of college students, improve the participation of college students and teachers in campus football, incorporate college campus football into the sports public service system, and build a "smart sports classroom" for analysis, so as to attract more people to participate in football. Make a personal contribution to the construction of "healthy China".

#### **REFERENCE**

- [1] Zhu Liping, Hong Xuhui. Research on the Development of college Campus football under the background of "Healthy China" [J]. *Journal of Sichuan University of Arts and Sciences*, 2019, 33(05):96-100.
- [2] Feng Aimin, Zhang Yao. Research on the Promotion and Development of Campus football in Colleges and Universities under the background of "Healthy China" -- A case study of campus football in Dalian University [J]. *Journal of Dalian University*, 2017, 38(06):79-84.
- [3] Wang Hongfei. Research on the Teaching Development of college football courses under the Background of Promoting the development of Campus football in China [J]. *Sports Science and Technology Literature Bulletin*, 2019, 28(11):88-89+103.



# Research on Digitalization Empowering Elderly Care Qualification Certification

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**Abstract:** Through big data analysis methods, the survival activity trajectory of retirees can be grasped, and the health and survival status of personnel can be judged. Based on this, the quality-of-life level of personnel can be determined, and more accurate data can be provided for the verification of personnel's survival status and the distribution of pension benefits. This not only eliminates the inconvenience of on-site survival assessment for retirees, but also effectively curbs the loss of pension pooling funds.

**Keywords:** Retirement, Retirement, Survival, Certification, Fake Claims

The Office of the Ministry of Human Resources and Social Security issued a notice in 2018 specifically on the complete cancellation of the centralized certification of social insurance benefits (Human Resources and Social Security Department [2018] No. 54), requiring the complete cancellation of the centralized certification of social insurance benefits, and no longer requiring certified persons to undergo centralized certification at designated locations within the prescribed time period. Canceling centralized certification is not about not requiring certification, but about establishing stricter risk prevention and control measures, transforming service methods, and establishing a certification model that mainly focuses on information comparison, combining social services with remote certification services, "embedding certification in the intangible.". On the one hand, it reduces the occurrence of fake social security claims and maintains the safety of social insurance funds. On the other hand, it solves the consumption of administrative costs, social costs, and public satisfaction caused by centralized certification, effectively improving the satisfaction and sense of gain of the people. Therefore, the first step is to

transform the service concept of treatment qualification certification from a ideological perspective and innovate service models.

## 1. BUILDING A BIG DATA APPLICATION ANALYSIS PLATFORM TO ENABLE DATA TO RUN ERRANDS FOR AUTHENTICATION

How to make the people run errands less? That is to make the data run errands more. Using the "big data" thinking and relying on technologies such as cloud computing, big data analysis, and blockchain, we will promote the informatization of human resources and social security work, build a big data analysis system in the field of human resources and social security, and fully leverage the business support role of big data. Fully utilize various government resources to share data, consolidate key indicators of different business modules of human resources and social security, achieve modeling, mining, analysis, cascading drilling, visualization, and machine learning applications of human resources and social security data, and provide technical support for data analysis and decision-making within human resources and related fields. From the perspective of the certified person, there is no need to participate in any active or passive authentication behavior, truly achieving the goal of putting people at the center and actively serving the people well.

To facilitate the intuitive query and statistical analysis of relevant data by business operators, a B/S architecture is used to build a salary qualification certification business platform. Fully utilize data resources such as insured data, remote medical data, and online monitoring, explore mutual cooperation with departments such as public security, transportation, health, civil affairs, tourism, and banks, conduct regular or real-time data comparisons, achieve information sharing

with real name verification scenarios such as medical treatment, population management, funeral, and transportation, improve real-time sharing, and analyze and verify the eligibility of insured persons to receive social insurance benefits based on big data analysis of their various action trajectories.

The platform automatically analyzes data based on survival authentication models and personal behavior trajectory data by setting monthly automatic tasks, predicts the monthly survival status of each person, corrects the trust level labels of insured individuals based on the calculation results, and updates the survival status trust level of the benefit group. At the same time, combining personal behavior trajectory data, multiple trajectory recognition models are established for people with different trust levels for intelligent silent authentication. By utilizing key trajectory information that can distinguish survival status, a survival authentication whitelist is formed through data comparison. the whitelisted population can continue to enjoy social security benefits during the validity period, thereby achieving silent authentication for those with trajectory benefits. For high-risk groups, while notifying insured individuals through SMS and mobile apps to actively authenticate, the platform automatically interfaces with the community authentication handling system to assign a list of verified insured individuals to corresponding community handling personnel and automatically create business agency items. Community leaders are promptly reminded to conduct targeted checks on high-risk groups, making authentication services more convenient and efficient. the platform analyzes and monitors the deceased population, and reversely corrects the survival authentication model. In the entire authentication mode, while improving the authentication experience of insured persons and safeguarding their legitimate rights and interests, a strict risk prevention and control mechanism has been established, which monitors in real-time from the source and effectively maintains the security of social security funds.

## **2. CERTIFICATION PLATFORM SCHEME DESIGN**

The design and development of this system should be carried out in accordance with the relevant regulations, norms, and standards of the Ministry of Human Resources and Social Security on the construction of the treatment qualification certification system. In terms of system management, system architecture, and information structure, research and application should follow the relevant technical requirements of the Ministry of Human Resources and Social Security.

### **(1) Follow development technical specifications**

The system construction follows the existing technical specifications for information system development, including software development specifications, computer program development document manuals, computer software testing specifications, information technology software engineering terminology, system and software integrity levels, software lifecycle configuration management, and information system security planning level classification standards.

### **(2) Modular design**

Adopting a modular design approach, the software is divided into independent modules, and the calling relationships and data exchange methods between modules are defined one by one. Enable members of the creative team not only to write modules in parallel and independently, but also to divide subsequent software maintenance into smaller modules.

### **(3) The system is easy to operate and has a user-friendly interface**

The system design is centered on the service object, driven by business processes and task driven navigation, with a task based triggering function. If there is a proxy business, operators should be reminded. the system interface is business oriented rather than function oriented. Provide custom shortcut menu combinations, allowing operators to define their commonly used shortcut keys; Provide fast and convenient custom query functions, and each query condition can be configured by oneself; Provide quick and convenient predefined and custom report functions; Provide online help, presenting common questions in the form of a knowledge base; Provide heuristic knowledge navigation function to achieve correct guidance for various business operations,

facilitate business operation queries for handling personnel, and have a unified, beautiful, and elegant interface style.

### 3. BIG DATA MANAGEMENT AND APPLICATION

The system obtains information data from various departments such as civil affairs, public security, transportation, medical care, and health through multiple data sharing channels, and conducts a series of processes such as aggregation, integration, modeling analysis, and calculation according to certain rules to ultimately achieve information push and effectiveness evaluation.

Obtain various business information and behavioral data of insured persons from multiple channels such as human resources and social security, public security, education, housing provident fund, taxation, transportation, health and family planning, civil affairs, hospitals, banks, etc., to form a basic data pool for qualification certification of benefits. Try to be as consistent as possible with the original system data, and then perform simple integration, structured processing on unstructured data, or add date descriptions for labeled data without deep processing. the data resource pool for unconditional certification of benefits and qualifications is centered on individuals, gathering information including individual basic information, individual medical information, individual travel information, civil affairs survival information, and other data, including structured data, to build a granular business data aggregation system.

Based on the data resource pool of unconscious authentication of treatment qualifications, the data related to the data resource pool of unconscious authentication of treatment qualifications is fused to form a personal data warehouse according to the application form. Integrate various types of data collected around individuals, define consistent indicators and analysis dimensions, and form a unified and standardized data warehouse.

One is to provide basic data governance functions, including management of data standards, data quality, and data security. the second is to provide big data computing

management services, including basic attribute label data services, statistical services, and algorithm services.

For the population whose survival status cannot be identified by the analysis platform, business personnel can regularly compile a list and use channels such as text messages, mobile apps, personal online service halls, and grassroots business platforms to notify insured individuals to undergo independent authentication or door-to-door authentication at the grassroots level. For those who have exceeded their certification period, the platform can dock with the smart social security business handling platform to suspend their benefits. At the same time, for the suspended population, after the authentication comparison of the authentication handling system is passed, the social security benefits recovery interface is called to recover the benefits.

Only through the implementation of the above effects can the value of big data analysis applications be truly realized, and the comprehensive cancellation of centralized certification for social insurance benefits, improvement of work mechanisms, innovation of service methods, and truly achieve a new certification service model of "integrating certification into invisibility".

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### REFERENCES

- [1] Neijiang Social Security Center Neijiang City: Continuously Promoting the Digital Transformation of Social Security Management. Sichuan Labor Security 2022(01).
- [2] Hu Lianji. Analysis of the Current Status of Qualification Certification Methods for Elderly Care Benefits [J]. Volume, 2020(27):386-388.
- [3] Li He, Song Yuejia. the Application of Big Data Technology in Social Elderly Care [J]. Communication Power Research, 2018, 2(12):242-243.

# New Energy Vehicle Technology Professional Post Class Competition Certificate Integration Exploration

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**Abstract:** The comprehensive education mode of "Post class competition Certificate" is to train students who adapt to the requirements of actual jobs, so that they can meet the needs of national industries and promote social development. This paper takes the new energy vehicle technology major automotive battery and management system course as an example to explore the value and role of the integrated teaching mode of "post class competition certificate". This course combines the specific requirements of "Post Course Competition Certificate" for new energy vehicle majors. This paper probes into the following aspects: defining the training objectives of automotive professionals, constructing the course system, enriching course resources, and improving the evaluation and assessment of course learning. This paper discusses the reform method of integrating "post course competition certificate" for new energy vehicle technology major in higher vocational colleges to promote the improvement of students' practical operation ability and comprehensive quality.

**Key words:** Post class competition certificate; New energy vehicles; Curriculum reform

## 1 INTRODUCTION

In recent years, China's new energy vehicles have developed rapidly, sales have shown explosive growth, new energy vehicles are becoming more and more popular in the mainstream mass consumer groups, and China has become the world's largest new energy vehicle market. Although China's new energy automobile industry is developing rapidly, the pace of talent training is relatively lagging behind. At present, although new energy vehicle majors have emerged in China's higher and secondary vocational education systems, the training scale and curriculum need to be further optimized. At the same time, it is

necessary to constantly update the teaching content and methods to meet the needs of the development of the industry. In 2019, the State Council issued the National Post.

The Implementation Plan of Industrial Education Reform proposes that vocational education should adapt to industrial development and eliminate the phenomenon of stratification between schools and enterprises, courses and positions [1].

## 2. OVERVIEW OF "POST COURSE COMPETITION CARD" ACCOMMODATION

"Post Course Competition Certificate" has been widely concerned and practiced by higher vocational colleges since it was put forward. Some higher vocational colleges have focused on exploring and studying the "post course competition certificate", taking it as an important part of the comprehensive quality evaluation of students, and playing a positive role in enrollment and employment. This model aims to integrate the curriculum with the "1+X" certificate and the vocational skill level certificate by connecting the vocational skill requirements of enterprise positions with the teaching of professional courses. At the same time, through the skills competition to improve students' hands-on ability and comprehensive literacy, so that students can better adapt to the job.

"Post" in "Post Course Competition Certificate" refers to the job post, which is the guide of curriculum reform. the course content should be set according to the job needs, docking professional standards and working processes, and designing course content based on job skills to cultivate highly skilled talents. "Lesson" refers to the curriculum system, which is the core of teaching reform. According to the professional personnel

training program and curriculum standards, improve the teaching method, use information technology and rich teaching resources, and form a practical and effective teaching mode. It refers to the vocational skills competition, which is a demonstration of curriculum teaching. Through the school, provincial, national skills competition, to show high-end skills to lead the teaching reform. Through the integration of competition courses, the role of "promoting teaching by competition", "promoting learning by competition" and "promoting reform by competition" should be fully brought into play. "Certificate" refers to the "1+X" certificate, vocational skill level certificate, etc., which is learned by the course check. Through the development and integration of multiple types of "1+X" certificates, vocational qualification certificates, training certificates and vocational skill level certificates, the certificate examination and professional course teaching link. To achieve the integration of courses and certificates, so that vocational college courses with real work tasks as the carrier, integration of enterprise certification content. Students' ability to analyze and solve problems is trained by taking actual cases as objects [2].

### **3 ANALYSIS OF THE CONTENT OF THE "POST CLASS COMPETITION CERTIFICATE" CORRESPONDING TO THE NEW ENERGY AUTOMOBILE MAJOR**

#### **3.1 New energy vehicle technology professional job skills**

According to the professional talent training program and curriculum standards, new energy vehicle technology graduates have a wide range of job opportunities in many fields such as new energy vehicle manufacturing, maintenance, sales and service. It mainly includes new energy vehicle manufacturing, assembly and debugging positions, such as major automobile manufacturers; New energy vehicle performance testing, fault diagnosis positions and maintenance positions, such as new energy vehicle repair shop.

Such as charging facilities construction companies or operators. the corresponding positions of the new energy vehicle battery and management system are mainly new

energy vehicle battery quality inspectors, who are responsible for the quality testing of the battery to ensure the quality and safety performance of the battery. New energy vehicle battery production technician, responsible for battery production and assembly work.

#### **3.2 Course objectives and contents of new energy vehicle battery and management system**

The course content of "New energy vehicle Battery and Management System" mainly includes power battery part and battery management system part. the battery part mainly introduces the classification, structure, principle, characteristics and application of various batteries in new energy vehicles. the battery management system mainly includes power battery management system, power battery thermal management system, battery charging system, BMS fault processing, waste battery recycling technology, battery balancing technology, etc. Through the study of this course, students have a comprehensive understanding of the detection, replacement and treatment of the new energy vehicle power battery pack. To enable students to master the basic knowledge and necessary skills of new energy vehicle battery and management system, and can be applied to future work practice, to achieve the purpose of combining theory with practice.

#### **3.3 New energy vehicle technology professional corresponding skills competition**

The competition related to the new energy vehicle technology major is mainly the national Key Technical skills Competition for new energy vehicles. This is a national vocational skills competition held for the key technology fields of new energy vehicles, aiming to accelerate the training and selection of high-quality skilled talents in the key technology fields of new energy vehicles, serve the talent needs of the new energy automobile industry, and continue to promote the rapid development of China's new energy automobile industry [4]. In addition, there are competitions such as the "Internet Plus" college student Innovation and Entrepreneurship Competition. By participating in various competitions, we can lead the training and curriculum construction

of relevant professional talents in vocational colleges and realize the purpose of promoting teaching and learning through competition.

The relevant content of skills competition will be organically integrated into the teaching of professional courses to continuously improve the skills and abilities of students.

### **3.4 New energy vehicle technical professional corresponding skill certificate**

Certificate is a kind of certification and inspection of students' phased learning results. Schools can introduce vocational qualification certificates with high gold content into schools, integrate skill level assessment projects into teaching, and integrate vocational ability standards into curriculum assessment and evaluation. the relevant certificates in the automotive industry are varied to new capabilities

For example, the source of automotive technology professional, its certificate has CRRC "1+X" grade certificate, as well as automotive electrician certificate, new energy vehicle maintenance technician certificate. When integrating the content of certificate examination, teachers need to fully consider the learning situation and actual skill level of students. Adjust the teaching plan appropriately, arrange the necessary intensive training, and take the improvement of professional ability as the focus.

## **4. "POST COURSE COMPETITION CERTIFICATE" INTEGRATED COURSE REFORM MEASURES**

In the process of formulating talent training objectives, the characteristics of "post class competition certificate" are combined. With vocational demand as the guidance, practical ability training as the focus, the combination of industry-university-research and application as the approach, and the module of "industry demand+course learning+skill competition+vocational skill level certification", the enterprise's demand standards for skilled talents are integrated into the professional talent training program. To achieve the goal of matching job skills with course content, integrating skills training with vocational certification, and combining skills improvement with competition experience.

According to the position group and vocational ability requirements corresponding

to the major, determine the vocational ability standards that students need to have, including professional knowledge, practical skills, comprehensive quality and so on. Integrate the content and requirements of the industry competition into the teaching content of the course, and realize the combination of skill improvement and competition experience.

"New energy Vehicle Battery and Management System" is a very practical course, close to the theoretical teaching can not meet the teaching effect of "post class competition certificate". Integrating "post class competition certificate" mode requires supporting digital information resources. A series of digital teaching resources can be developed, such as multimedia teaching software, online open courses, micro-courses, etc., to help students better master relevant knowledge and skills, improve their career competitiveness and employability.

In the course teaching of new energy vehicle battery and management system, it is necessary to change the traditional single evaluation method and adopt a multi-dimensional evaluation method. In the process of teaching implementation, we should pay attention to process evaluation, which should be able to fully reflect students' ability, including comprehensive classroom performance, enterprise post ability, skill contest participation, vocational skill certificate acquisition, etc.

## **5 CONCLUSION**

The implementation of the integrated teaching mode of "post class competition Certificate" is the combination of post skill demand, course teaching system, skill competition and vocational skill level certification. It aims to promote the teaching reform of new energy vehicle technology major in higher vocational colleges, comprehensively improve students' professional quality and vocational skills, improve teaching quality and employment competitiveness, and achieve the training objectives of vocational education. Higher vocational colleges need to constantly explore the integration path of "post course competition certificate", and implement "post course competition certificate" integration teaching for new energy vehicle battery and management system courses. In the

implementation process, the teaching mode should be constantly adjusted and optimized based on post practice, skill competition and certificate assessment requirements, so as to meet the demand for composite technical talents in the new energy automobile industry.

#### REFERENCES

- [1] Dummert S, Umkehrer M. the Short-Run Effects of the Covid-19 Pandemic on Vocational Education in Germany [J]. IAB-Discussion Paper, 2021.
- [2] Marita J, Heike S. Germany's Vocational Education and Training System in

Transformation: Changes in the Participation of Low- and High-Achieving Youth OverTime [J]. *European Sociological Review*, 2015(2):161-171.

[3] Pleshakova A Y. Vocational Education Systems in Germany and Turkey: Comparative Analysis [J]. *Cuadernos de Sofia*, 2020(2).

[4] Kutscha G. General Education and Initial Vocational Training in Germany the "Flexicurity Route" of Modernization under Aspects of Flexibility, Transferability and Mobility [J]. 2022.

# Modern Research Progress in Network Pharmacology

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**Abstract:** Drug repositioning refers to the discovery of new indications for marketed drugs and is an important application field of network pharmacology. Drug repositioning strategy is currently one of the best risk to benefit strategies among known drug development strategies, and it is also an effective method to solve the dilemma of high investment and low success rate in new drug development. At present, more than a hundred drugs have been successfully repositioned, and drug repositioning research has surpassed the stage of randomly discovering new indications for drugs and entered a new research stage based on computer technology. the existing research methods mainly include methods based on small molecule (or ligand) features, methods based on protein target (or receptor) features, and methods based on phenotype (or network) features. With the increasing demand for effective drugs for the prevention and treatment of major diseases, as well as the rapid development of related disciplines such as systems biology, computational biology, and network pharmacology, drug repositioning has become a hot topic of global attention in the field of drug development, facing the increasingly difficult situation of new drug research and development.

**Keywords:** Network Pharmacology; Multidirectional Pharmacology; Multi-target Pharmacology

## 1. INTRODUCTION

In the past, the main focus of new drug development model was to search for highly specific inhibitors of pathogenic targets in diseases, but the success rate of this development model was low and the cost was huge, often causing difficulties in new drug development. the drug development model of "single component, single target" has certain limitations. the structural basis of human

function is a complex biological network of molecular interactions. In 2007, British pharmacologist Hopkins first proposed the concept of "network pharmacology". This concept is based on the theories of systems biology, genomics, proteomics, multi-directional pharmacology, and other disciplines. It uses technologies such as omics, high-throughput screening, network visualization, and network analysis to reveal the complex biological network relationships between drugs, genes, targets, and diseases. Based on this, it analyzes and predicts the pharmacological mechanisms of drugs and verifies and evaluates their efficacy, adverse reactions, and mechanisms of action through corresponding experiments [1].

Network pharmacology fully considers the complex interactions between biomolecules, introduces network models to explain the pathogenesis of diseases and the mechanisms of drug action, understands the interaction between drugs and the body, and has had a profound impact in the field of biomedical research. The biggest difference from traditional pharmacology is that network pharmacology interprets the process of disease occurrence and development from the perspective of systems biology and biological network balance, and guides new drug discovery from the overall perspective of improving or restoring biological network balance [2]. Network pharmacology closely revolves around systems biology to reveal the efficacy, toxicity, and metabolic characteristics of drugs. It is a construction of a biological information network based on high-throughput omics data analysis, computer virtual computing, and network database retrieval. It represents a new concept and model of modern biopharmaceutical research, revolutionizing the traditional concept of "one drug, one target, one disease" as the main focus of traditional



biopharmaceutical research and development, Has a profound impact on the concepts, strategies, and methods of understanding and discovering drugs [3].

Network analysis technology is the core technology in network pharmacology research. By integrating various disciplinary theories and technologies, it conducts multi angle and multi-level information mining on the relevant molecular networks in network pharmacology research, accurately and objectively searching for components or component combinations, drugs or drug combinations that can produce specific pharmacological effects, as well as key nodes and modules with specific physiological functions, thus providing guidance for new drug development the revelation of drug action mechanisms, elucidation of disease mechanisms, and identification of biomarkers provide valuable guidance, especially for the research of complex diseases represented by Alzheimer's disease, which is more prominent [4].

Under the impact and influence of continuous progress in modern medicine and pharmacy, the modern research of traditional Chinese medicine has also attracted widespread attention from scholars, making it a hot and key research field in the current medical and pharmaceutical field [5]. Traditional Chinese medicine has accumulated rich experience in the treatment of diseases, especially in the prevention and treatment of complex diseases, through thousands of years of clinical practice, which is worthy of analysis and reference in network pharmacology [6]. In order to better interpret the relationship between traditional Chinese medicine research and network pharmacology, a comprehensive analysis was conducted on the relationship between traditional Chinese medicine pharmacology, toxicology, traditional Chinese medicine decoction pieces, and network pharmacology. the establishment of network traditional Chinese medicine pharmacology, network toxicology, and network traditional Chinese medicine decoction pieces has become a new strategy for modern traditional Chinese medicine research.

## 2. DRUG AND TARGET GENE MODELS

Researchers used cellular components such as proteins and metabolites as nodes to establish

a bipartite graph model with drugs. Proteins do not function in isolation both inside and outside the cell, but rather as part of a highly interconnected network of interactions within the cell. Through the interaction network and pathway network between drugs and targets, we can better understand the interaction relationship between drug action and targets, such as gene expression patterns [7]. Network analysis helps to confirm multi-target drug therapy, predict drug side effects, and discover new drug targets.

## 3. SIGNAL TRANSDUCTION PATHWAY MODEL

In order to better discover new drugs for treating complex diseases and overcome the limitations of single targets, drug researchers have begun to shift their attention from molecular drug targets to the cellular signaling network and multi target drug design of diseases.

## 4. METABOLIC PATHWAY NETWORK MODEL

Drugs with multiple targets may overcome the limitations of single target drugs and achieve more effective and safe therapeutic effects. In order to identify multiple potential targets of drugs in the disease network, it is necessary to analyze the structure and dynamics of the network. Researchers have developed a multi target optimal intervention (MTOI) software for searching for multiple targets in the network and applied it to the inflammatory cytokine metabolism network [8].

## 5. PROTEIN INTERACTION NETWORK MODEL

The analysis of protein-protein interaction networks can help identify the targets of drug action. Researchers located drug targets in the network of protein-protein interactions and found that drug targets have more connections than typical protein nodes, but fewer connections than key nodes in the network. This result is statistically significant. This result indicates that drug target sites are typically located between key nodes and redundant or peripheral nodes in the biological network. Through the observation of drug targets in protein interaction networks, drug targets are generally located at high

connectivity but non critical nodes. This indicates that quantitative network analysis helps to locate and confirm drug targets. Researchers in the drug drug network model based on side effect similarity predict whether two drugs have a common target through side effect similarity [9]. A network of drug drug relationships was constructed by linking different categories of drugs through the similarity of side effects using 746 marketed drugs. the network has 1018 connections, of which 261 are drugs for different indications. By using the Unified Medical Language System (UMLS) ontology to classify and compare the similarities of side effect symptoms, it was found that there are closely related but different categories of drugs in the ontology. Through analysis of the network, new targets of known drugs have been identified [10].

## 6. CONCLUSION

Network pharmacology, as an emerging discipline, provides new ideas for numerous research fields. This study belongs to the interdisciplinary field of pharmacology, biology, informatics, computer science, and other fields. More and more researchers are paying attention to network pharmacology, and the research in its related disciplines is also constantly deepening. With the increasing amount of data related to diseases and drugs, and the continuous improvement of computer technology and computational analysis software, it is believed that network pharmacology will be more and more applied to pharmaceutical research in the future. the establishment of a network pharmacology database for traditional Chinese medicine aims to disseminate scientific information and provide free services to those in need. This will help traditional Chinese medicine researchers fully utilize free academic resources on the internet, greatly reducing research costs and improving research efficiency.

## REFERENCES

- [1] Xiaorui Cheng, Wenxia Zhou, Yongxiang Zhang. Technologies Related to Experimental Research in Network Pharmacology [J]. Chinese Journal of Pharmacology and Toxicology, 2012, 26(2):131-137.
- [2] Xiang Li, Leihong Wu, Xiaohui Fan. Network Pharmacological Study on the Main Active Constituents of Compound Danshen Formula [J]. China Journal of Chinese Materia Medica, 2011(21):2911-2915.
- [3] Haiyu Xu, Luqi Huang, Peng Lu. Modern Research Ideas on Traditional Chinese Medicine Based on in Vivo Metabolic Processes and Network Pharmacology [J]. China Journal of Chinese Materia Medica, 2012, 37(2):142-145.
- [4] Jiagu Pan. A New Drug Development Model Based on Network Pharmacology [J]. Chinese Journal of New Drugs and Clinical Practice, 2009(10):721-726.
- [5] Wei Zhu, Dongmei Wang, Xiaojie Xu. Concept of Establishing a Computer Network Pharmacology Online Database for Chinese Herbal Medicine [J]. Journal of Guangzhou University of Traditional Chinese Medicine, 2013, 30(1):109-111.
- [6] Wenxia Zhou, Xiaorui Cheng, Yongxiang Zhang. Network Pharmacology: New Concepts for Understanding Drugs and Discovering Drugs [J]. Chinese Journal of Pharmacology and Toxicology, 2012, 26(1):4-9.
- [7] Xiaorui Cheng, Wenxia Zhou, Yongxiang Zhang. Technologies Related to Experimental Research in Network Pharmacology [J]. Chinese Journal of Pharmacology and Toxicology, 2012, 26(2):131-137.
- [8] Yanqiong Zhang, Shao Li. Several Advances in Network Pharmacology and Modern Research of Traditional Chinese Medicine [J]. Chinese Journal of Pharmacology and Toxicology, 2015(6):883-892.
- [9] Yongxiang Zhang. Drug Repositioning: An Important Application Field of Network Pharmacology [J]. Chinese Journal of Pharmacology and Toxicology, 2012, 26(6):779-786.
- [10] Jing Zhao, Haiyang Fang, Weidong Zhang. Bioinformatics Methods in Network Pharmacology Research of Traditional Chinese Medicine [J]. Progress in Pharmaceutical Sciences, 2014(2):97-103.

# Formation and Inhibition Mechanism of Ice Crystal in Electric Vehicle Thermal Management System

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**Abstract:** With the increasingly serious global energy crisis and environmental pollution problems, electric vehicles have become the development trend of the future automotive industry with their low energy consumption and low emission characteristics. However, the performance stability of electric vehicles in low temperature environments, especially the problem of frost condensation in thermal management systems, has been plaguing the development of the industry. In this paper, the coupling control equation of phase field, concentration field and temperature field is established by using the phase field method. the mechanism of ice crystal condensation in the thermal management system of electric vehicle is deeply studied, and the effective technology of inhibiting ice crystal formation is explored. the research results provide a theoretical basis for improving the stability and performance of electric vehicles in low temperature environment.

**Keywords:** Electric vehicle; Thermal management system; Ice crystal inhibition; Phase-field method

## 1. INTRODUCTION

With the rapid development of new energy vehicle technology, electric vehicles have gradually become the mainstream of the future automobile market. However, in the process of popularization and application of electric vehicles, there are still many challenges, especially the thermal management problem in extreme weather conditions.

In the low temperature environment, the ice crystal formation problem in the thermal management system of electric vehicles has become a key factor restricting its performance. the formation of ice crystals will not only lead to the blockage of the pipes of the thermal management system and the

reduction of heat exchange efficiency, but also may cause damage to core components such as batteries and motors, which will affect the overall performance and safety of electric vehicles. Therefore, the in-depth study of the mechanism of ice crystal formation in the thermal management system of electric vehicles and the exploration of effective inhibition mechanism are of great significance for improving the low temperature adaptability of electric vehicles and ensuring their safe and stable operation.

At present, the research on the mechanism of ice crystal formation and inhibition in the thermal management system of electric vehicles has made some progress. the researchers analyzed the conditions, processes and influencing factors of ice crystal formation through experiments, and put forward the strategy of inhibiting ice crystal formation. However, due to the complexity of the thermal management system of electric vehicles and many uncertain factors in low temperature environment, the research on the microscopic mechanism of ice crystal formation is insufficient.

Therefore, this paper aims to deeply study the mechanism of ice crystal formation in the thermal management system of electric vehicles, explore its influencing factors and inhibition mechanism, and provide a theoretical basis for the optimal design and performance improvement of the thermal management system of electric vehicles.

## 2. THEORETICAL BASIS AND METHOD

### 2.1 Theoretical basis

Based on Ginzburg-Landau phase transition theory, the phase field method reflects the combined effects of diffusion, ordering potential and thermodynamic driving force

during microstructure solidification through differential equations. Its solution is often used to describe the morphology, curvature and movement of the interface. the phase field method represents the physical state of the system at each position in space and time by introducing the ordered parameter  $\phi$ .

As shown in Figure 1, When, the system is liquid,  $\phi = 0$ ; When, the system is solid,  $\phi = 1$ ; When it changes continuously between 0 and 1, the system is in a state of coexistence of solid and liquid phases. the formation process of ice crystals, brine channels and salt cells in seawater under super-cooling conditions can be simulated by using phase field method.

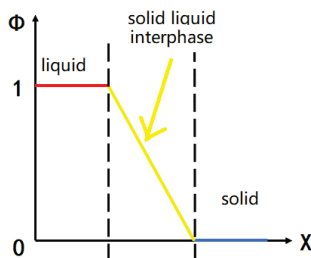


Fig 1 Schematic diagram of the physical meaning of phase field parameters

2.2 Methods

The phase field equation established based on Ginzburg-Landau free energy theory is:

$$\frac{\partial \phi}{\partial t} = M[\nabla(\varepsilon^2 \nabla^2 \phi) + h'(\phi)(f^L - f^S) - wg'(\phi)]$$

The concentration field equation based on Fick's diffusion law is:

$$\frac{\partial c}{\partial t} = \nabla \left( \frac{D(\phi)}{f_{cc}} \nabla f_c \right)$$

The governing equation of temperature field is:

$$\frac{\partial T}{\partial t} = D_T \nabla^2 T + \frac{L}{2c_p} h'(\phi) \frac{\partial \phi}{\partial t}$$

Based on the coupled solution of phase field, concentration field and temperature field, the numerical solution strategy of ice crystal oriented growth under adsorption is determined. Using Visual C++ to write a calculation program to solve the control equations of phase field, concentration field and temperature field, using Origin to process the numerical simulation output results to realize the visualization of simulation results.

In the simulation, the phase-field parameters are provided with initial conditions and boundary conditions, then the phase field can be calculated. the concentration field will be calculated simultaneously, accompany with the repeating iterations according to the simulation results. Then the temperature field will be calculated and new temperature profile will be updated. These simulation results will be used to refresh the phase-field parameters, then to start a new iteration. the numerical solution strategy is shown in Fig. 2. An explicit difference method with uniform grid is adopted to solve the phase field and concentration field governing equations, and the alternating direction implicit (ADI) algorithm is employed to solve the temperature field, avoiding the restriction of time step. the mesh of the simulated area is divided into  $800 \times 800$  nodes.

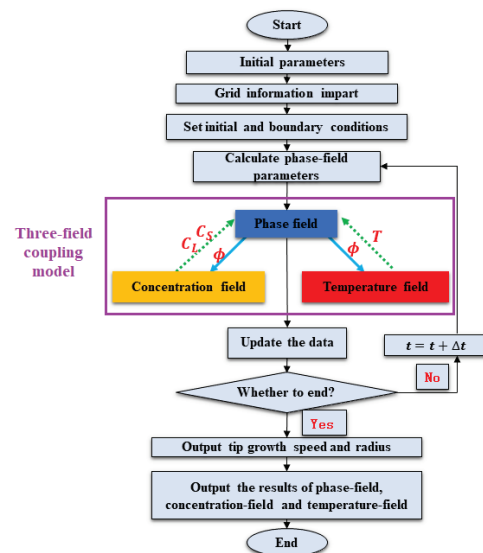


Fig 2 Numerical solution strategy

3. RESULTS

The results of the phase field, concentration field, and temperature field of coolant ice crystal growth are shown in Fig. 5(a)(b)(c). When ice crystal begins to solidify, ice growth is affected by the heat flow and disturbance. the disturbance first influences the flat interface and changes its stability, resulting it in an unbalanced state that begins to transfer to the columnar dendrites.

Temperature is a key factor affecting the formation of ice crystals. In the low temperature environment, the kinetic energy

of water molecules in the thermal management system is reduced, which is easy to form ice crystals. Especially in the local low temperature area in the cooling pipe, water molecules are more likely to condense into ice crystals. In addition, rapid changes in temperature can also lead to the formation of ice crystals, because the rapid cooling process makes it impossible for water molecules to disperse and condense directly into ice crystals.

Pressure changes in the system and the concentration of coolant can also affect the formation of ice crystals. Under high pressure, the freezing point of the coolant decreases, inhibiting the formation of ice crystals. In addition, the concentration of the coolant also affects its freezing point. the lower the coolant concentration, the less ice crystals will form.

The flow state of the coolant also has a significant effect on the formation of ice crystals. In areas with slow or poor flow, water molecules are more likely to aggregate and condense into ice crystals. In addition, complex flow states such as turbulence and vortices of the fluid may also promote the formation of ice crystals. Therefore, optimizing the flow design of coolant is an important means to reduce the formation of ice crystals.

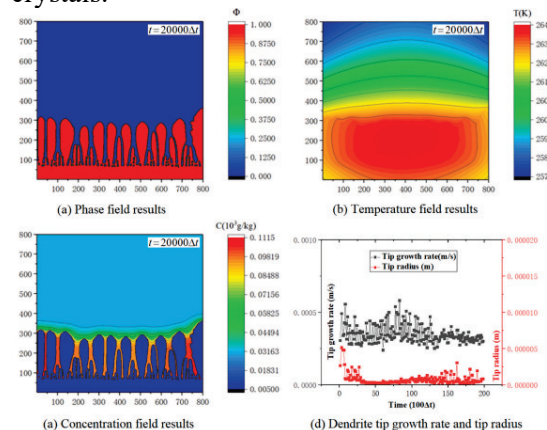


Fig. 3. Results of ice crystallization of multiple crystal nuclei on horizontal wall

#### 4. CONCLUSION

In this paper, the formation mechanism of ice crystals in the thermal management system of electric vehicles is deeply studied, and effective suppression methods are proposed. the results show that reducing the coolant concentration and increase cooling system temperature can significantly reduce the formation of ice crystals and improve the stability and reliability of the thermal management system. However, the complexity of thermal management systems for electric vehicles means that there are still many challenges to be faced. In the future, we will continue to explore the microscopic mechanism of ice crystal formation, seek more efficient suppression methods, and further optimize the design and control strategy of thermal management systems. At the same time, we will also focus on the development of new cooling media and advanced heating technology to provide new ideas and directions for the innovation and development of thermal management systems for electric vehicles.

#### REFERENCES

- [1] Lei Zhang, Quande Qin. China's new energy vehicle policies: Evolution, comparison and recommendation [J]. Transportation Research Part A: Policy and Practice, 2018, 110:57-72.
- [2] Al-Wreikat Yazan, Serrano Clara. Effects of ambient temperature and trip characteristics on the energy consumption of an electric vehicle [J]. Energy, 2022, 238(PC):
- [3] Hong Seong Ho, Jang Dong-soo et al. Thermal performance of direct two-phase refrigerant cooling for lithium-ion batteries in electric vehicles [J]. Applied Thermal Engineering, 2020, Vol. 173.

# Teaching Objectives and Teaching Management

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**Abstract:** Teaching is the most basic activity among many activities in university. Teaching itself should also be regarded as a research object, and the research on teaching is teaching research. Both teaching objectives and teaching management are the contents of teaching research. the former belongs to the subjective category of teaching research, while the latter is a kind of choice of the subjective category. There is a close relationship between them. the importance of teaching activities makes teaching management play an important role in universities. Objective management is a way of teaching management. the correct understanding and complete grasp of teaching objectives are helpful to the implementation of objective management.

**Keywords:** Teaching Research; Teaching Objectives; Teaching Management; Management by Objectives

## 1. RESEARCH ON TEACHING

Teaching itself is a research object, teaching research should be university education research, also should be a part of university scientific research. Around teaching, there are the choice of teaching content, the organization of teaching content, the attention to teaching methods, the different understanding of the teaching process, and so on. As a result, many specific areas of study on teaching have been formed. Among them, the choice of teaching content has always been concerned by people. Spencer links education to life and career. In China, Mr. Hu Shi holds a "naturalistic view of life" [1], so he tends to the scientific view of education. When CAI Yuanpei was in charge of Peking University, he advocated "academic freedom" and valued free academics. His educational philosophy was full of the idea of free education [2].

On the basis of a better understanding of the objective category of teaching, the study of

teaching management should select, establish and apply the subjective category to the management behavior. From this point of view, excellent teaching management should be based on the deep understanding of the connotation of teaching and the full grasp of the corresponding teaching behavior. This is why good university teaching management is often controlled by some of the most experienced professors, or by such professors who form a teaching committee or advisory board.

The importance of teaching activities determines the pivotal position of teaching management in school management, and the diversity (or plurality) of teaching elements determines the complexity of teaching management.

Different majors have different teaching contents and need to use different teaching methods. Different professors, even if they teach the same specialty, will have different teaching concepts and make different teaching designs. There are also different grades of students need different teaching to cope with; As for the students in the same grade, their individualized development is undoubtedly what teaching should pay attention to.

## 2. ABOUT TEACHING OBJECTIVES

Teaching goal is a subjective category. Compared with the objective teaching and learning category, it shows more diversified perspectives and expressions.

The factual existence of teaching objectives can be traced back to ancient Greece. Socrates' "know thyself" is the teaching or educational goal.

Bloom and his students divide the teaching goals "into three main areas, which they call the 'cognitive area,' the 'emotional area,' and the 'skill area.'" For example, the cognitive field "includes knowledge, understanding, application, analysis, synthesis, and

evaluation" [3]. These goals, as outlined by Bloom, are based on student development. In fact, school-based, teacher-based teaching goals are different from student-development goals. For example, the teacher's teaching goal can also include the communication goal with students, including the choice of teaching content and other teaching construction goals. Teaching management workers and teaching theory workers may have different perspectives when they study teaching. The former considers more operability, controllability, easy to quantify, easy to evaluate. However, if the teaching management workers pay attention to the improvement of their teaching theory level and the enhancement of teaching theory cultivation, it will undoubtedly help to achieve better results in their implementation and operation behavior, and build on the basis of more conscious behavior. Thus, it can be seen that it is necessary for teaching managers to carry out regular teaching research in practical management, which can include both operational research and theoretical research.

### 3. TEACHING MANAGEMENT AND EDUCATIONAL MANAGEMENT

There is a difference between the concepts of teaching and education. There is a view that it is called education only after moral education is added. In fact, in the school, moral education is in the teaching, and there is no moral education outside the teaching. For example, there is a special course called moral education, but the special course is carried out in the way of teaching. Even if there is a special report on morality, it is within the scope of the school curriculum.

The broad concept of curriculum refers to all cultures that students can learn in school. Specifically, curriculum can be understood in three senses: one is "curriculum as a discipline"; Second, "curriculum as a goal or plan"; the third is "the experience or experience of the course as a learner". No matter what form it takes, moral education is part of the curriculum or teaching. Therefore, there is no substantive difference between the concepts of teaching and education in schools. An important difference between teaching and education is their scope of application. Outside the school, things are different. For

example, policies and guidelines related to education. These educational policies and guidelines cannot be called teaching policies and guidelines. For another example, there is education finance, and it is not appropriate to call it teaching finance.

From this, we can see that in society, there is a clear difference between educational management and teaching management, but in the school, the two kinds of management are highly integrated. In schools, although there is some management of property, it is mostly carried out around teaching and need not be called educational management.

### 4. TEACHING OBJECTIVES AND TEACHING MANAGEMENT

Teaching rules and teaching objectives or teaching management belong to the objective and subjective categories of teaching research respectively. Teaching objectives should be holistic. The goal is for the development of the student, however, the student is a complete person, and therefore, they should be fully developed.

On the other hand, this complete development can also be analyzed. According to our understanding of human beings, students can develop from the intellectual, mental and physical aspects, and according to Bloom's classification, they can also develop from three different fields. Therefore, the proper handling and treatment of wholeness and locality also constitute the content of teaching objectives. Goals can be structured, but they should be structured in the whole person.

Dewey said, "The process of education has no purpose outside itself; it is its own purpose." [4] This is the idea of education for education's sake and, in essence, the idea of man as an end in himself.

Management by objectives is especially necessary in teaching management. Teaching staff need more independent space, as long as the goal is clear, they can fully demonstrate their action ability in behavior, master the initiative of design and creation. To a large extent, management by objectives is the management that guarantees teachers' teaching initiative.

This kind of management requires the manager's goal and its system to be advanced, timely and controllable. To this end, it is

precisely required that the manager is very careful and can evaluate the situation. If the goal is not advanced, the significance of management by goal is not great. the goal is too excessive, the goal is not suitable, the goal is difficult to achieve, which may lead to twists and turns. If the goal is changed too frequently after it is set, the effect will be reduced; When the goal is not appropriate, it will affect the enthusiasm if it is not adjusted in time. At the same time, the target should also be easy to debug, easy to decompose, in order to better apply to different types of work, different levels, play different roles.

The question of purpose and management is also relevant to our understanding of the university at the macro level. Teaching objectives are closely related to teaching management. Management by objectives in teaching is of great significance, so it is worth

studying deeply.

#### **REFERENCES**

- [1] Hu Shi. Preface of Science and Outlook on Life [M] // Bai Jian, LIU Yanyun. Selected works on Hu Shi's education. Beijing: People's Education Press, 1994:191.
- [2] Peng Daolin. President CAI Yuanpei's Academic Freedom View and Free academic view [J]. Modern University Education, 2008(3):28-31.
- [3] Li Bingde. Theory of teaching [M]. Beijing: People's Education Press, 1991:55. Editorial Committee of the CPC Central Committee, Ed. Beijing: People's Publishing House, 1993:35.
- [4] Dewey, J. Democracy and education [M]. Wang Chengxu, Trans. Beijing: People's Education Press, 2001:58.



# Explanation of Traditional Chinese Medicine Treatment for Dry Eye Syndrome

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**Abstract:** Dry eye disease is one of the common ophthalmic diseases in clinic. The continuous development of modern society and economy, the popularity of electronic products, and the changes in lifestyle and working environment have led to the constant increase of the incidence rate of dry eye disease. In previous clinical practice, drug treatment was mainly given to patients with dry eye syndrome, but the treatment effect was poor and prone to recurrence. In recent years, with the in-depth research of traditional Chinese medicine by clinical medical personnel, its application in the clinical treatment of dry eye syndrome has achieved significant results. This article elaborates on the research progress of traditional Chinese medicine in the treatment of dry eye syndrome. **Keywords:** Dry eye syndrome; Traditional Chinese medicine treatment; Research progress

## 1. INTRODUCTION

Dry Eye Syndrome (DES) is caused by insufficient or excessive evaporation of tears in the eyeball, resulting in low surface moisture and discomfort in the eyes. The pathological mechanism of dry eye syndrome is relatively complex, involving not only the stability of the tear film, but also the inflammatory response of the ocular surface, which poses difficulties for clinical treatment. Dry eye patients may experience obvious symptoms such as dryness, burning sensation, foreign body sensation, and blurred vision in the eyes, which may worsen after prolonged use of electronic devices. The commonly used medication for treating dry eye in Western medicine is the local use of artificial tears or other eye drops to improve the stability of the tear film inside the eye and alleviate eye inflammation. However, long-term use of medication by patients can reduce eye comfort, increase drug resistance, and affect clinical

treatment outcomes. In recent years, there has been new progress in the treatment of dry eye syndrome in traditional Chinese medicine. Traditional Chinese medicine believes that the occurrence of dry eye syndrome is closely related to the lungs, liver, and kidneys. The theories of "the liver can see when it receives blood" and "the liver opens its orifices to the eyes" refer to the liver system's ability to inject nutrients such as blood into the eyes; the kidney governs water and body fluids, while the lung promotes the circulation of descending body fluids and water fluids. The interaction between the two causes body fluids to nourish the eyes and nourish the eyes. By regulating the functions of the lungs, liver, and kidneys, as well as the overall Qi and blood, the effect of treating dry eye syndrome is achieved. This article elaborates on the research progress of traditional Chinese medicine in treating dry eye syndrome.

## 2. TRADITIONAL CHINESE MEDICINE INTERNAL TREATMENT METHOD

Traditional Chinese medicine adheres to the principle of syndrome differentiation and treatment, providing patients with dry eye syndrome with tonifying deficiency, clearing heat, nourishing yin, and moistening dryness, improving their physical mechanisms, and achieving the goal of treating dry eye syndrome. Traditional Chinese medicine believes that dry eye syndrome is mainly caused by liver and kidney yin deficiency and insufficient body fluid. Therefore, the treatment of dry eye syndrome mainly chooses drugs with sweet taste and cold nature, which belong to the liver and kidney meridians. Medicines such as *Rehmannia glutinosa*, *Poria cocos*, *Chrysanthemum*, *Ophiopogon japonicus*, *Chaihu*, and *Peony bark* are often used to treat dry eye syndrome. These drugs have good effects of nourishing yin, clearing heat, tonifying liver and kidney, and can

increase tear secretion in the eyes, improving dry eye symptoms. Compound Chinese medicines such as Qiju Dihuang Wan can improve tear secretion, tear film rupture time, and dry eye symptoms, which is beneficial for reducing IL-1 in tears  $\beta$ , the levels of inflammatory factors such as IL-8. Qi Ju Di Huang Wan combined with sodium hyaluronate eye drops was used to treat dry eye syndrome. The observation group showed significant improvement in tear secretion test, dry eye symptom score, tear film rupture time, and FL score, with a clinical treatment effectiveness rate of 95.56%. Professor Wang Qi's principle for regulating Yin deficiency constitution is to strengthen water, regulate fire, and nourish kidney yin. He treats patients with dry eye syndrome with modified Liu Wei Di Huang Wan to improve their clinical symptoms. There are research results indicating that administering Shihu Night Light Pills, Vitamin AD Soft Capsules, and Sodium Hyaluronate Eye Drops in the treatment of dry eye patients significantly improves the tear film rupture time, tear secretion test, and FL score of the patient's eyes, which is beneficial for promoting tear secretion and inhibiting the inflammatory response of the patient's eyes.

### 3. TRADITIONAL CHINESE MEDICINE EXTERNAL TREATMENT

#### 3.1 Acupuncture therapy

In the meridian theory of traditional Chinese medicine, acupuncture therapy can unblock the meridians, harmonize qi and blood, and thus achieve the effect of treating diseases. For patients with dry eye syndrome, doctors use acupuncture therapy to stimulate specific acupoints in the human body, which can regulate the patient's visceral function, improve the patient's body qi and blood, promote the secretion of tears in the eyes, and thus alleviate symptoms such as dry eyes. Acupuncture therapy for dry eye syndrome mainly selects acupoints based on their specific syndrome types and symptoms, often using a combination of local and distal acupoints for treatment. Local acupoints mainly include Jingming, Baihui, Sizhukong, Taiyang, Zanzhu, etc. Acupuncture of local acupoints can directly affect the patient's eyes and head, thereby improving the patient's eye

symptoms and promoting the circulation of qi and blood in the eyes. The distal acupoints mainly include Taichong, Hegu, Sanyinjiao, Ganshu, Zusanli, etc. Acupuncture at the distal acupoints can regulate the patient's Qi and blood. Acupuncture therapy for dry eye syndrome can improve the patient's dry eye symptoms and regulate the transTGF in the lacrimal gland of the eyeball-  $\beta$  1 level expression inhibits inflammatory response. When acupuncture is used to treat patients with liver depression and spleen deficiency type dry eye syndrome, the main method is to nourish blood and soften the liver acupuncture, and the effective rate of treatment can reach 90.00%. On the basis of conventional acupuncture, patients with liver and kidney yin deficiency type dry eye syndrome are treated with electroacupuncture, often using acupoints such as Sanyinjiao and Ququan, with ideal clinical efficacy. The treatment method of needling the sphenopalatine ganglion in combination with syndrome differentiation and acupoint selection for patients with liver and kidney yin deficiency type dry eye syndrome can promote the secretion of tears in the eyes of patients, and the effective rate of treatment can reach 95.00%. In the treatment process of dry eye patients, the acupuncture therapy of soothing the liver, nourishing blood, and moistening the eyes has a significant effect. This method can reduce the patient's inflammatory reactions in the eyes, improve the stability of the patient's tear film, and thus improve the patient's clinical symptoms. Therefore, the combination of syndrome differentiation and acupuncture therapy has a significant effect on the treatment of dry eye syndrome. This method mainly improves the patient's tear secretion by unblocking meridians, harmonizing qi and blood, and reducing the patient's ocular inflammatory response. Different acupuncture points can be given according to different syndrome types and individual differences to improve the quality of life of dry eye syndrome patients.

#### 3.2 Traditional Chinese medicine fumigation and traditional Chinese medicine ion introduction therapy

In recent years, with the deepening of clinical research in traditional Chinese medicine, traditional Chinese medicine fumigation and

traditional Chinese medicine ion introduction therapy have become one of the widely used methods for dry eye patients. Traditional Chinese medicine fumigation therapy mainly uses the steam generated after the decoction of traditional Chinese medicine to fumigate the patient's eyes. This method allows the eyes to come into full contact with the steam, which is conducive to the absorption of drug components. Traditional Chinese medicine fumigation therapy can have a direct effect on the eyes of patients, promoting blood circulation in the eyes and promoting the repair of ocular surface tissue, thereby stimulating tear secretion in the eyes. In traditional Chinese medicine fumigation therapy, mulberry leaves, chrysanthemums, peony bark, dandelion that clear heat and cool blood are commonly used, as well as astragalus and bupleurum that promote qi and blood circulation. When using traditional Chinese medicine ion introduction therapy to treat dry eye syndrome, a direct current electric field is used to directly penetrate the drug ions into the patient's affected area, providing more accurate treatment for the patient's eyes. At the same time, the stimulation of electric current can promote blood circulation in the patient's eyes, thereby improving their symptoms of dry eyes. the

research results of some scholars have shown that in the treatment of 50 dry eye patients in the observation group, artificial tear therapy and traditional Chinese medicine fumigation therapy can improve the patient's conscious symptoms, reduce FL scores, and significantly increase the tear film rupture time and tear secretion experiment level. During the treatment of dry eye syndrome, administering traditional Chinese medicine ion introduction therapy combined with sodium hyaluronate eye drops can increase the systolic flow velocity of the patient's ophthalmic artery, promote the increase of diastolic peak, and thus improve the patient's ocular blood circulation.

#### REFERENCES

- [1] Zhao Nan, Jie Ruiping, Liu Xue, et al. Clinical research progress of traditional Chinese medicine external treatment for dry eye syndrome [J]. *Chinese Folk Therapy*, 2023, 31(20):98-101. DOI: 10.19621/j.cnki.11-3555/r2023.2027
- [2] Zhu Fengjiao, Lu Yanying, Zhou Wei. Research on Traditional Chinese Medicine Treatment of Dry Eye Syndrome [J]. *Medical Information*, 2022, 35(14):172-175.