International Journal of Social Sciences in Universities

2025 VOLUME 8 NUMBER 2

Publisher: ACADEMIC PUBLISHING HOUSE
Address: Quastisky Building, Road Town, Tortola, British Virgin Islands
UK Postal Code: VG1110

E-mail: editor03@acadpubl.com
http://www.acadpubl.com/ijssu.aspx

ACADEMIC PUBLISHING HOUSE

CONTENTS

Research on the Path of Integrating Anti-epidemic Spirit into the Mission and Responsibility of Higher Vocational Medical Students from the Perspective of "Healthy China"

Zhao Xing
Zibo Vocational Institute, Zibo, Shandong, 255314, China

Abstract: Against the backdrop of the in-depth promotion of the "Healthy China" strategy and the urgent need to cultivate the mission and responsibility of young people in the new era, this study focuses on the integration path of the anti-epidemic spirit and the mission and responsibility of higher vocational medical students. Through literature analysis, questionnaire surveys, and practical exploration, it is found that although higher vocational medical students show certain enthusiasm in personal, social, and national responsibilities, there are still problems in the cultivation of responsibility spirit, such as insufficient practical activities, single cultivation methods, and complex environmental influences. the study proposes an improvement path of "consolidating ideological consensus+effectively integrating resources+integrating teaching courses+practicing social practice+infiltrating anti-epidemic culture", aiming to guide medical students to firm their value pursuit of serving the country with medicine, enhance their professional responsibility, and provide talent support for the implementation of the "Healthy China" strategy. the research results have important theoretical and practical significance for enriching the ideological and political education resources of college students and improving the effectiveness of ideological and political work in colleges and universities.

Keywords: Healthy China; Anti-epidemic Spirit; Higher Vocational Medical Specialty; Mission and Responsibility; Path Research

1. INTRODUCTION

Research Background Youth are the future of the nation, as the saying goes, "When youth thrive, the country thrives; when youth are strong, the country is strong. " General Secretary Xi has repeatedly emphasized that contemporary youth should strive to be the vanguard in the race to achieve national rejuvenation, and strive to become new-era youth with ideals, courage to take responsibility, ability to endure hardships, and willingness to struggle. As the future force of the medical and health cause, medical students are important talent reserves for implementing the "Healthy China Strategy, " making the cultivation of their mission and responsibility particularly crucial. In the post-pandemic era, the anti-epidemic spirit, with its connotations of life first, national unity, self-sacrifice, respect for science, and a shared future, highly aligns with the cognitive structure, value pursuit, and psychological needs of medical students' professional ethics. However, some college students currently show weakened sense of responsibility, such as avoiding burdens, shirking responsibilities, or adopting a "Buddhist" or "lying flat" attitude. Therefore, integrating the anti-epidemic spirit into the cultivation of medical students' mission and responsibility carries important contemporary value.

2. RESEARCH STATUS AT HOME AND ABROAD

2.1 Domestic Research Status

Domestic research on the anti-epidemic spirit mainly focuses on its generation logic,

scientific connotation, and contemporary value. Studies on the mission and responsibility of college students often link it with the Chinese Dream, emphasizing the importance of education and its approaches. However, research combining the anti-epidemic spirit with the mission and responsibility of college students is still in the stage of path exploration and theoretical improvement, especially the applied research among higher vocational medical students is scarce. Existing studies indicate that integrating the anti-epidemic spirit into the ideological and political education of college students faces problems such as low integration degree, insufficient spiritual inheritance, and poor learning effects. the integration approaches mainly focus on classroom teaching, cultural education, practical training, etc.

2.2 Foreign Research Status

Although early foreign studies proposed concepts related to "mission", they have no direct relevance to the mission and responsibility education of young college students in the new era. Research on the cultivation of social responsibility and patriotic education can provide some references. As a unique contemporary spirit of China, the anti-epidemic spirit has been rarely studied abroad.

3. RESEARCH SIGNIFICANCE AND METHODS

3.1 Research Significance

3.1.1Theoretical Significance

Provide theoretical references for the study of mission and responsibility spirit. Offer theoretical guidance for ideological and political education in higher vocational colleges. Enrich the treasure trove of ideological and political education resources for college students.

3.1.2Practical Significance

Promote the reform and innovation of ideological and political education in higher vocational colleges. Shape the social responsibility of medical students. Pool youthful strength for socialist modernization. Promote the inheritance and development of the anti-epidemic spirit.

3.2 Research Methods

3.2.1Literature Analysis

Collect and integrate theories and knowledge from multiple disciplines (Marxist philosophy, ideological and political education, pedagogy, etc.), relevant documents from the Central Committee of the Communist Party of China, the State Council, and the Ministry of Education, as well as authoritative works in the discipline of ideological and political education, providing a solid literature foundation for the research and writing of this topic.

3.2.2Questionnaire Survey

Design questionnaires to investigate students from the School of Nursing and the School of Medical Technology at Zibo Vocational College, aiming to understand the current situation of mission and responsibility cultivation, identify existing problems, analyze causes, and provide practical basis for the research on cultivating mission and responsibility spirit among medical students.

3.2. 3Practice Method

Based on the educational process of "condensation-integration-infiltration", and adhering to the integration forms of "diversion-strengthening typical cases-creating scenarios-promoting sharing-applying the Internet", this study proposes an integration path of "consolidating ideological consensus+effectively integrating resources+integrating teaching courses+practicing social activities+infiltrating traditional culture". Guided by students' needs and development, it aims to build a three-dimensional ideological and political education model of "theory+experience+innovation" for students, forming a circular education system that emphasizes awareness cultivation, practical training, atmosphere shaping, and evaluation feedback, so as to improve the effectiveness of integrating the anti-epidemic spirit into the mission and responsibility education of higher vocational medical students.

4. CURRENT SITUATION INVESTIGATION AND ANALYSIS

4.1 Investigation Design and Process

To ensure the effectiveness of the research, a questionnaire suitable for this study was designed, consisting of 23 questions (14 single-choice and 9 multiple-choice). the questionnaire covers the basic information of

the respondents (higher vocational medical students), their subjective attitudes towards "mission and responsibility", and the current cultivation status of mission and responsibility spirit in society, schools, and families. the student samples were selected with emphasis on representativeness and comprehensiveness, mainly from Shandong Province and radiating to 14 provinces, including students from grades 1 to 3 of higher vocational medical majors.

4.2 Analysis of Investigation Results

The data analysis focuses on two aspects: the current status of mission and responsibility spirit among higher vocational medical students and the cultivation status. Personal Responsibility, 12.09% of students fully agreed to actively improve professional skills, 45.65% basically agreed, but 12.57% completely disagreed. After taking the initiative, 83.77% felt a sense of personal value, 86.12% believed they had improved their abilities, while 13.33% felt no special meaning or even regretted it. Social Responsibility, 93.99% of students would help others in case of sudden illness, among which 42.75% would immediately rescue (e. g., CPR), 51.24% would seek help or call emergency services, and only 2.42% hesitated due to negative events. National Responsibility, 89.36%, 82.25%, and 87.64% of students considered themselves as "mission bearers", "selfless dedicators", and "active participants" for national rejuvenation, while 7.32% believed it had little relevance to college students. Cultivation Environment, 96% of students admired deeds of sacrificing lives to save others, with 37.71% willing to dedicate themselves and 58.29% willing to help under safe conditions. However, 16.92% dared not act due to negative events like "helping the elderly but being falsely accused", and 39.78% would take videos as evidence before acting. Cultivation Methods, 54.83% preferred practical teaching, 25.07% favored theoretical instruction, and 77% recognized the role of parents' words and deeds in family education. Cultivation Approaches, 81.7% accessed education through classroom teaching, 45.65% through extracurricular practices, but 56.22% considered practical activities insufficient in frequency, and 51.93% reported low participation.

4.3 Existing Problems and Causes

Insufficient initiative in responsibility spirit, inadequate practical activities, and need for environmental improvement. Students' inert mentality and weak capabilities; single cultivation methods; influences of Western ideological trends and negative online public opinion.

5. EXPLORATION OF INTEGRATION PATHWAYS

This study, based on the "Healthy China" strategy, addresses the cultivation of mission-driven responsibility among vocational nursing and medical students. It constructs a five-pronged improvement pathway of "forging ideological consensus—effective resource integration—curricular fusion—social practice tempering—anti-epidemic cultural immersion, " forming a targeted cultivation system through the integration of theory and practice.

5.1 Forging Ideological Consensus:Dual-Driven Enhancement of Mission Awareness

At the level of ideological guidance, schools and students form a collaborative force for cultivation. On one hand, through leadership coordination and the synergistic efforts of ideological and political education teachers and professional course instructors, higher education institutions integrate mission-driven responsibility education into the entire talent cultivation process. This strengthens educators' awareness of fostering a sense of responsibility and builds an educational chain from top-level design to grassroots implementation. On the other hand, students are guided to enhance their autonomous sense of responsibility through both theoretical and practical dimensions. By studying the theoretical connotations of the anti-epidemic spirit and drawing strength from the "Four Histories, " they resist passive attitudes such as "lying flat" or "Buddha-like" indifference. In their academic and daily lives, they practice self-reliance—completing tasks independently, participating in work-study programs—and deeply align personal development with the mission of national rejuvenation.

5.2 Resource Integration: Building a Multidimensional Educational Resource Repository

In terms of resource exploration and integration, a "three-category resources+shared platform" model is established. First, red hero resources are carefully selected, featuring anti-epidemic pioneers from Party history and recipients of the "July 1 Medal" to strengthen spiritual heritage. Second, materials on ordinary heroes of the new era are curated, covering frontline medical workers, researchers, and other groups whose deeds exemplify professional responsibility. Third, peer education resources are developed by highlighting exemplary students, such as practice leaders and academic role models, through initiatives like "senior advice sessions" and "outstanding graduate sharing forums" to inspire emulation. Simultaneously, a resource-sharing platform is built to integrate the anti-epidemic spirit with campus cultural branding. Through original artistic works, immersive exhibitions, and other forms, an engaging educational environment is created to ensure efficient transformation and dissemination of resources.

5.3 Curricular Fusion: Innovating the Synergistic Education Mechanism of Ideological and Professional Courses

Curriculum reform focuses on a three-dimensional linkage of "ideological and political courses—course-based ideological education—teaching methods. " In ideological and political teaching, both moving stories from the anti-epidemic frontlines and the theoretical depth of the anti-epidemic spirit's contemporary value are emphasized. For example, the spirit of unity is integrated into collectivism education, while the scientific spirit is woven into professional ethics training. In course-based ideological education, mission-driven responsibility objectives are embedded in professional courses. For instance, nursing practice courses highlight the professional ethos of "reverence for life, " and medical technology courses incorporate the research spirit of "seeking truth and pragmatism, " filling the moral education gaps in professional training. Teaching method innovations adopt a "cloud+flipped+case-based" model, utilizing MOOCs, issue debates, and comparisons of Chinese and Western anti-epidemic approaches to enhance student engagement and cognitive depth.

5.4 Practice Tempering: Building a Professionalized Platform for Responsibility Cultivation

The practice-based education system emphasizes a trinity of "platform—activities—methods. " Autonomous student organizations, such as the Nightingale Society, carry out activities like "first aid skills in the community, " strengthening the connection between professional practice and a sense of responsibility. Partnerships with hospitals and epidemic prevention offices provide students with real-world scenarios to practice the anti-epidemic spirit. Activity designs focus on integrating "professionalism+responsibility, " including initiatives like "search for anti-epidemic heroes" research, "Three Rural Deliveries" medical services, and community health science popularization

outreach, enabling students to deepen their understanding of mission through service. Practical methods, such as grassroots internships, Western Region Volunteer Service Program participation, and research on livelihood issues, enhance students' problem-solving abilities, achieving synergistic development of "responsibility spirit—professional skills. "

5.5 Cultural Immersion: Creating a Holistic Educational Atmosphere

Cultural immersion permeates through three dimensions: "material—spiritual—digital. " Material culture is built through visible educational elements like campus slogans, statues of anti-epidemic heroes, and current affairs broadcasts. Spiritual culture fosters a campus ethos of "learning from heroic role models, " promoting the exemplary deeds of teachers and students who contributed to anti-epidemic efforts, while emphasizing the teaching philosophy of "educating oneself before educating others. " Digital culture innovates by leveraging WeChat, Weibo, apps, and short-video platforms to conduct activities like "cloud lectures on the anti-epidemic spirit" and "micro-discussions on mission responsibility. " Interactive communities and live-streaming enhance the contemporary relevance and appeal of education, creating a blended online-offline cultural education field. This pathway has been implemented at the Nursing School and Medical Technology

School of Zibo Vocational Institute through initiatives like Nurses' Day event series
, summer "Three Rural Deliveries, " and red classic recitations. It has effectively enhanced students' professional identity and social responsibility, providing a replicable practical model for cultivating vocational nursing and medical talent under the "Healthy China" strategy.

6. ACHIEVEMENTS AND APPLICATION

the team has carried out diversified educational activities in the School of Nursing and the School of Medical Technology, yielding remarkable results. Through activities such as league classes and theme group days, students have deeply studied the spirit of the 20th National Congress of the Communist Party of China and Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era. the "Youth Great Learning" program has institutionalized theoretical learning, with thematic education covering 3, 197 young people. the "Angel Benevolence Home" student community Party building model has been created. and the construction of online positions such as "two microblogs and one app" (WeChat, Weibo, Douyin) has enhanced influence. Leveraging professional advantages, volunteer services like the "Zi Xiaohu" service team have won the title of Advanced Collective. During the summer "Three Goes to the Countryside" activity, 51 teams were formed, and projects like "Million College Students Enter Communities" have improved practical capabilities. Cultural education has been deepened by establishing associations such as the Zhizhi Study Society, organizing Nurses' Day series activities, and promoting quality improvement projects for ethnic minority youth to cultivate "Four Best" (best morality, strongest skills, greatest potential, highest social evaluation) talents and support students' dreams. In the future, the team will continue to explore and comprehensively enhance the mission and responsibility of medical college students, contributing to the "Healthy China" strategy.

REFERENCE

[1] Jiang Danyang, Luo Zhijia. (2020). the Theoretical Connotation, Era Value and Promotion Path of Anti-epidemic Spirit [J]. Leading Journal of Ideological and Theoretical Education, (10), 45-49.

[2] Xu Yanling. (2020). the Generation Logic, Rich Connotation and Value Implication of the "Anti-epidemic Spirit"[J]. Journal of Shandong University (Philosophy and Social Sciences), (5), 1-8.

Research on the Optimization Strategy of the China's Minors Protection System: A Comparative Governance Perspective

Luo Xiaoyan, Yuan Lianghao, Zhu Xirun, Hu Minmin, Yang Shiman, Jiang Shiyong*
Leshan Normal University, Sichuan, China
*Corresponding Author.

Abstract: the protection of minors is vital to the future of the nation and the hope of the people, and has long been a priority for governments at all levels and various sectors of society in China. In recent years, significant progress has been made in enhancing the minor protection system through legislative advancements and improved social governance. Nevertheless, challenges remain, including weak enforcement of laws, insufficient interdepartmental cooperation, and delays in addressing online protection. From an international comparative perspective, this paper proposes an optimization approach centered on development rights, advocating a shift from reactive relief to proactive empowerment while exploring localized implementation of institutional innovation.

Keywords: Comparative perspective; Protection system for minors; Optimization strategies

1. INTRODUCTION

Minors are the future of the country and the nation, and protecting their rights and ensuring their healthy development has always been a central issue in achieving sustainable societal progress. the report of the 20th National Congress of the Communist Party of China explicitly emphasized that “safeguarding children’s legal rights and optimizing their growth environment” is a key task in advancing the modernization of national governance. In this context, deepening theoretical research on the protection of minors is not only essential for implementing the decisions of the Party Central Committee, but also an important path to respond to social concerns and solve practical problems. At present, China is in a critical period of social transformation, during which minors face new challenges such as internet addiction, school bullying, and insufficient family supervision. Under the new situation, this paper aims to take Xi Jinping's thought on the rule of law as the fundamental guidance, base on the practice of the protection of minors in China, and explore the development of a “proactive empowerment-based” protection mechanism with Chinese characteristics by examining international best practices and analyzing the domestic legal framework, offering insights for the establishment of a distinctive Chinese system for minor protection.

2. THE CURRENT STATUS OF THE PROTECTION OF MINORS’ RIGHTS AND INTERESTS IN CHINA

After more than 70 years of exploration, the protection system for minors’ rights and interests in China has evolved into a multi-layered framework that integrates legal norms, administrative supervision, and educational practices. At present, China has established a legal protection system for minors with the *Constitution* as the outline, the *Law of the People's Republic of China on the Protection of Minors* and the *Law on the Prevention of Juvenile Delinquency* as the core, and the *Compulsory Education Law*, the *Civil Code* and others as supplements, covering the fields of family, school, network, etc. However, weak connections between provisions and unclear responsibility boundaries have resulted in fragmented enforcement at the implementation level[1] . Secondly, the social support network is fragmented. the main institutions for helping and educating minors are the Women’s Federation and the Communist Youth League, but their time and energy for participation are limited. Many

other social forces lack organizations and fail to be effectively utilized, which leads to the urgent need for funds and personnel on the one hand, and the remaining resources on the other hand. Thirdly, the intervention mechanism is single. China emphasizes problem prevention through psychological counseling while relying on judicial measures to maintain campus order and social stability. However, there is a tendency to prioritize punishment over education, often neglecting the psychological needs of minors. Although judicial measures can quickly restore stability, their rigidity may also exacerbate underlying conflicts.

3. COMPARISON OF THE PROTECTION OF MINORS' RIGHTS AND INTERESTS AT HOME AND ABROAD

3.1 Comparison of legal frameworks

From the legislative level, China has constructed a six-in-one comprehensive protection framework of "family, school, society, network, government and justice" with the *Law of the People's Republic of China on the Protection of Minors* as the core, innovatively incorporating infringement forms such as cyber-bullying and algorithmic discrimination in the digital era into the scope of regulation, and forming a hierarchical intervention mechanism through the *Prevention of Juvenile Delinquency Law*, supporting social investigation, psychological evaluation and other procedures, reflecting the state-led active protection logic. the UK, based on the Children's Law, has established a welfare supply system in which local governments and social organizations work together. Although its children's commissioner system strengthens the supervision function, its independence is limited due to its dependence on local finances. Relying on the federal and state legislative framework, the United States has established a mandatory reporting system with the *Child Abuse Prevention and Treatment Act*, which has strong executive power, but different interstate standards lead to fragmentation of implementation. In contrast, China emphasizes the involvement of state responsibility, the UK and the US focus on the collaborative participation of social forces, and the technical governance dilemma in the digital age has become a legislative blind spot faced by all countries. It is urgent to explore the collaborative path of institutional optimization through various comparisons.

3.2 Comparison of social support networks

China employs a government-led, multi-sector collaboration model, with policy coordination among 23 departments, including civil affairs, education, and the judiciary, facilitated by the Leading Group for the Protection of Minors. While this model demonstrates significant mobilization efficiency in addressing sudden incidents of harm, it is marked by low resource coverage in rural areas and limited engagement from social organizations. Data from the Ministry of Civil Affairs in 2023 highlights that the uneven distribution of resources between urban and rural areas remains a critical issue, with rural regions experiencing a notable scarcity of resources for protecting minors' rights[2] . In contrast, the UK government delivers comprehensive child welfare services through local governments and social organizations, encompassing child protection, education, and health services. However, community service centers rely heavily on government-funded service contracts, hindering their long-term sustainability. This high dependence on welfare has also placed considerable strain on local tax systems.

3.3 Comparison of implementation and supervision mechanisms

In terms of implementation and supervision mechanisms, a legal system centered on the *Law of the People's Republic of China on the Protection of Minors* and the *Law on the Prevention of Juvenile Delinquency* has been established in China. Pilot workstations for the protection of minors have also been set up to promote multi-sector collaboration[3] . However, challenges such as insufficient interdepartmental coordination and inadequate information sharing persist. By contrast, the UK utilizes a cross-departmental data-sharing platform to integrate information from sectors like education and health, thereby enhancing intervention efficiency[4] . Despite its advantages, this platform requires significant technological and resource investment, leading to inconsistent performance in some areas and raising privacy

protection concerns. Regarding supervision mechanisms, oversight in China is primarily conducted through internal government channels, with limited involvement from independent third-party evaluations. This can result in issues being overlooked or rectifications remaining superficial. In the UK, transparency and accountability are strengthened by the appointment of a Children's Commissioner, who independently monitors policy implementation and reports to Parliament. However, the commissioner's authority is restricted to advisory powers, lacking enforcement capabilities, which similarly compromises the effectiveness of supervision.

4. THE OPTIMIZATION PATH OF CHINA'S MINOR PROTECTION SYSTEM

The modern transformation of the juvenile protection system necessitates moving beyond traditional governance to achieve systematic innovation in areas such as institutional design, cultural alignment, and resource integration. Globally, three prominent models have emerged: government-led, community-driven, and market-oriented approaches. Given this context, it is crucial to develop a hybrid governance framework that preserves institutional strengths while reflecting both cultural foundations and contemporary needs.

4.1 Constructing social support networks

The government-led approach combines the advantages of resource concentration and enforcement power but also faces dual challenges: the fragmentation of urban and rural resources and the absence of diverse stakeholders. Data from the Ministry of Civil Affairs in 2023 reveals that rural areas have only 0.8 social workers per 10, 000 children. Additionally, inter-departmental collaboration suffers from "information silos", hindering the education, civil affairs, and judicial systems from forming a cohesive service force[5] . To address China's current situation, a dual-track urban-rural system reform can be implemented. In cities, a "government procurement+social organization contracting" model can be piloted, drawing on the operational experience of community service centers in the UK, to establish a service standard system that ensures quality. In rural areas, a "central fiscal special fund+talent decentralization" program can be introduced, supported by a "university student social worker rural outreach" policy to strengthen grassroots capacity and gradually bridge the resource allocation gap[6] . Meanwhile, technological innovation plays a critical supporting role. the application of intelligent social work assistants can be promoted, using AI to analyze and match service resources while building a service network that integrates online and offline platforms. In cities, a "15-minute service circle" can be developed, while in rural areas, "mobile service stations" can be established.

4.2 Constructing a three - level intervention system of "prevention - correction - integration"

At present, China's approach primarily emphasizes psychological counseling and judicial punishment, but faces challenges such as insufficient professional resources and limited correction methods. To address this, the government could consider developing a three-level intervention system of "prevention-correction-reintegration", guided by the principles of "source prevention, targeted intervention, and sustained reintegration", to create a comprehensive juvenile protection framework. At the front end, reforms in teacher-training universities should integrate mental health education into compulsory curricula, while rural psychological teachers are trained through the "Special Post Plan". This will enable systematic student psychological screening, routine counseling, and crisis intervention. In the middle stage, Germany's "dual system" of education can be introduced into vocational schools, offering skills training programs paired with corporate internship opportunities. At the back end, inspired by Sweden's model, communities should establish support networks involving social workers and volunteers to create a closed-loop educational intervention system[7] , helping at-risk minors reintegrate into society and achieve long-term sustainable development.

4.3 Improving the supervision mechanism to enhance the institutional effectiveness

The scarcity of grassroots law enforcement resources and information barriers in China may weaken the effectiveness of policy

implementation. the supervision process relies heavily on government self-inspections, with a notable absence of independent third-party evaluations. To address this, a dual innovation approach combining "technology and system" can be adopted: one aspect involves establishing a national platform for protecting minors' information, incorporating a "red, yellow, blue" three-tier early warning mechanism to dynamically monitor high-risk groups; the other involves piloting an independent ombudsman system at the provincial level, empowering it with emergency response authorities such as temporary guardianship applications. A diversified evaluation system should be developed, engaging universities, think tanks, and non-profit organizations, while accountability is reinforced through annual policy white papers and a negative list exposure mechanism. Secondly, judicial protection reforms should be advanced by introducing a court final adjudication mechanism. After joint assessments by education, public security, and other relevant departments, the court will issue the final ruling. Judicial procedures must be standardized, with improvements made to application, hearing, and enforcement processes, alongside the establishment of effective relief channels.

5. CONCLUSION

Minors represent the foundation of future social development, and the protection of their rights is a universally urgent issue worldwide. While significant progress has been achieved in safeguarding minors in China, substantial challenges persist. Comparative research shows that developed nations have built comprehensive "prevention-intervention-recovery" protection systems through precise legislation, coordinated governance, and the engagement of societal resources. These practices offer valuable lessons for refining strategies in China. From a global governance perspective, China must balance international best practices with local innovation, guided by the principle of "the best interests of the child, " to establish a multi-dimensional protection framework. This framework should be government-led, involve collaboration among diverse stakeholders, and incorporate advanced digital technologies. Such efforts will facilitate a fundamental transition from fragmented responses to systematic governance and from reactive remedies to proactive prevention, thereby creating a robust safeguard for the healthy development of minors in a new era.

ACKNOWLEDGEMENTS

This paper is one of the achievements of the project "Protecting the Future: A Comparative Study of Domestic and International (UK and US) Minors' Protection Systems" supported by Innovation Training Program for College Students (No. S202410649176).

REFERENCES

[1] Wang Hanyun. Research on the Protection of Minor Victims' Rights and Interests in Criminal Cases [D]. Shenyang Normal University, 2023.

[2] Institute of Rule of Law Government, China University of Political Science and Law: "Special Report III | Li Hongbo and He Wanyu: Review of Problems and Legislative Concepts of China's Child Welfare System". http://fzzfyjy.cupl.edu.cn/info/1437/15603.htm

[3] Zhang, H. An Assessment of the Effectiveness of the Implementation of China's Law on the Protection of Minors, Social Science Research, 43(2), 78-86.

[4] Department for Education (UK), Working Together to Safeguard Children: A Guide to Inter-Agency Working.

[5] United Kingdom Parliament (1989). Children Act 1989. London: HMSO.

[6] Duan Junxia (2024). Strengthening the Protection of Minors' Rights and Interests in the Network Era. Procuratorate Daily.

[7] XI Xiaohua (2022). Service-oriented Protection: the Concept and Realization Path of Minors' Protection. Zhongguo yingyun zhongwei zhongyi zhuanzhi (Rights and interests department of the Communist Youth League Central Committee).

Analysis of Problems and Countermeasures in the Financial Management of Trade Unions in Higher Vocational Colleges

Jing Qiu
Zibo Polytechnic University, Zibo, Shandong, 255300, China

Abstract: This article mainly focuses on the existing problems and countermeasures of the financial management of trade unions in higher vocational colleges. First, it expounds the problems existing in the financial management of trade unions in higher vocational colleges, such as the insufficient budget management of trade union funds, insufficient supervision of the Economic Review Committee, and the level of accounting computerization needs to be improved. Then it puts forward several practical countermeasures, which mainly include strengthening the improvement of the trade union financial system, ensuring the standardized implementation of trade union financial management, giving full play to the supervision role of the Economic Review Committee, introducing advanced financial management software, and doing a good job in financial analysis, so that the problems of trade union financial management in higher vocational colleges can be solved.

Keywords: Higher Vocational Colleges; Trade Union Financial Management; Existing Problems; Countermeasures

1. INTRODUCTION

Higher vocational colleges promote the better development of colleges and universities to a certain extent through the effective implementation of trade union financial work. However, the financial management of trade unions should also be fully implemented, and effective measures should be taken to implement the financial management of trade unions and continuously improve the level of financial management of trade unions. In the process of specific implementation, we can start from the levels of gathering financial management in accordance with the law and scientific financial management and the effective use of financial resources, so as to make the financial management of the trade union more standardized. Staff should also perform relevant functions and complete the tasks assigned by their superiors. Judging from the current implementation of trade union financial management in higher vocational colleges, there are still shortcomings in some aspects, which needs to be paid attention to and continuously improved by higher vocational colleges.

2. PROBLEMS IN THE FINANCIAL MANAGEMENT OF TRADE UNIONS IN HIGHER VOCATIONAL COLLEGES

The budget management of trade union funds has not been fully implemented. Some higher vocational colleges only enhance the understanding of year-end final accounts and ignore budget preparation. Although the preparation is sometimes carried out, the method used in the specific implementation process is relatively lagging behind; and in the actual preparation process, there is no strict accordance with the budget requirements, and when the preparation is completed, the scope of budget expenditure is not combined in the implementation process. There are also higher vocational colleges whose trade union funds have been infiltrated into the welfare of employees and cannot be reimbursed administratively. In short, the degree of implementation of trade union fund budget management is not enough.

The review committee does not have enough supervision Some institutions of higher learning fund review committee's own functional role has not been demonstrated, and the investment in reviewing and supervising work is insufficient, of which this work is mainly aimed at the actual situation of trade union funding revenue and expenditure. the

funds have not been fully implemented, and some of the expenses reimbursed only need to be signed by the chairman of the trade union. To analyze the supervision and review work of the audit committee, it is enough to formulate the corresponding report and be inspected and signed by the leader to complete the task, but the functions of the review committee have not been fulfilled.

The level of accounting computerization needs to be improved To a certain extent, accounting computerization brings convenience to the work of trade union finance staff, relieves the work pressure of trade union finance personnel, ensures that trade union accounting information is more accurate and reliable, and promotes the smooth implementation of trade union financial management. However, as far as the current situation is concerned, some institutions of higher learning have fully penetrated their computerized management into administrative financial accounts, and have not realized computerized management in the financial management of trade unions. Some institutions of higher learning have not introduced advanced software implementation, and they are still mainly manual bookkeeping in practice. Therefore, it is difficult to improve the accuracy of trade union accounting information, and it is not conducive to the establishment of accounting accounts. Account auditing has a certain degree of complexity. Therefore, it also raises a problem that the level of financial modernization of trade unions in colleges and universities is not high, and the process of information construction has not been accelerated.

3. EFFECTIVE SOLUTIONS TO THE PROBLEMS EXISTING IN THE FINANCIAL MANAGEMENT OF TRADE UNIONS IN HIGHER VOCATIONAL COLLEGES

Strengthen the improvement of the financial system of trade unions First of all, from the perspective of colleges and universities, the establishment of bank accounts should be strengthened, but in the process of specific establishment, in strict accordance with the relevant requirements of the Trade Union Law, and then ensure the realization of special funds in terms of trade union funds. Secondly, strengthen the establishment of trade union financial institutions in accordance with scientific and reasonable principles, and reasonably allocate the existing trade union financial personnel in combination with the specific content of trade union financial management, and put forward corresponding requirements to accountants, requiring that they must have relevant post certificates to hold corresponding positions [1]. At the same time, in order to ensure the smooth implementation of the financial management of the trade unions of colleges and universities, from the perspective of the trade unions of colleges and universities, the comprehensive quality of the staff should be continuously improved, because the comprehensive quality of their work is directly related to the implementation level of accounting and financial work. Therefore, it is necessary for the trade unions of colleges and universities to increase their training efforts and carry out a variety of training activities, mainly train the staff in a regular or irregular manner, and take relevant knowledge and work skills as the training content, so as to promote the staff to better master, strengthen the abilities of the staff in all aspects, and continuously improve their comprehensive quality. To this end, it can also promote the smooth implementation of the financial management of the trade unions of colleges and universities.

Ensure the standardized implementation of trade union financial management For college trade unions, in order to perform social functions and achieve reasonable allocation and better management of their funds, it is necessary to implement the budgeting of trade union funds, and realize the importance of the annual budgeting of trade union funds, improve the understanding of trade union financial personnel in this regard, strengthen innovation in budgeting methods, abandon the lag behind budgeting methods, and implement budgeting in terms of income and expenditure [2]. Among them, the income budget is analyzed, etc. In the process of the actual budget, it should also be combined with the actual situation and the forecast amount of annual union fund income. Analyze the expenditure budget and other aspects, take the work of teachers, staff and trade unions as the basis, abide by the principle of guaranteeing

priorities and leaving room, and spend funds where they are needed. In the process of implementing the budget, it should be implemented within the scope of expenditure. Special attention should be paid to projects without a budget, and expenditures should not be carried out at will. Finally, we should also strengthen the establishment of a performance appraisal mechanism, fully implement the performance appraisal work, and implement it around budget implementation, so that trade union funds can be used reasonably and enhance the efficiency of use, so as to promote the financial work of trade unions to provide the best services for trade union work.

Give full play to the supervisory role of the Economic Review Committee Under the background of the provisions of the Trade Union Law, trade union organizations of institutions of higher learning should strengthen the management of funds, so as to ensure the proper performance of their responsibilities and the effective implementation of this work. From the perspective of trade unions in colleges and universities, while managing funds, we should also pay attention to the use of funds, collect the receivables, and actively disclose the specific projects of trade unions in an irregular manner, and report them to the financial work committee of the trade union, so as to realize the restrictions on trade union activities within the scope of relevant laws and regulations. In this process, it is also necessary for EIA supervisors to show their oversight role, raise awareness of audit supervision and trade union economic activities, and give full play to their subjective initiative to participate in it, so as to expand their work fields [3]. While ensuring that the smooth development of audit supervision work obtains good supervision results, it strengthens the service ability and makes reasonable use of trade union funds.

Introduce advanced financial management software If trade unions of colleges and universities want to realize the management of funds, implement supervision and control links, ensure the standardized implementation of trade union financial management, and constantly improve the level of trade union financial management, they should pay more attention to the computerized management of trade unions' financial, and comprehensively introduce advanced financial management software. First of all, we should strengthen the construction of the accounting computerized management system, but in the actual construction process, we should also combine the relevant requirements of the internal control system, and strengthen the attention to the positions of operators, computerization supervisors and system administrators, carry out corresponding configurations in accordance with the principles of science and reasonableness, the operation passwords prohibit leakage, and replace them in an irregular manner. We should also pay attention to the problem of computer viruses and strengthen the maintenance of computers. Secondly, carry out publicity and exchange lectures to infiltrate computerization knowledge into financial accountants, enhance their understanding of the operation steps of computerization software, and promote financial accountants to better grasp it. Finally, in order to ensure the smooth implementation of the financial management of trade unions of colleges in colleges and universities, so that they can obtain good management results, when ensuring that accountants implement accounting work well, actively encourage active exploration,

Do a good job in financial analysis For trade union financial personnel, they should carefully fill in the accounting statements of the trade union, and reasonably arrange the use of trade union funds for the next year, and make a corresponding plan. At the same time, in the context of the new era, the relevant functions of trade union financial management should also be displayed, especially the functions of fundraising and distribution and supervision, and the process of financial informatization of trade unions should be accelerated, the previous concepts should be changed, and the open source and saving should be realized in an effective way, so as to promote the smooth management of trade union funds in higher education institutions. the implementation has achieved good results, so that the financial work of the trade union can be brought into play.

4. CONCLUSION

In a word, trade unions of higher education institutions should pay more attention to

financial management, and understand the shortcomings of the current work, take effective measures to continuously improve, establish and improve the financial management system, constantly improve the comprehensive quality of staff, and ensure that the financial management of trade unions is more regulated. Fanhua.

REFERENCE

[1] Meng Xiaoya. Analysis and Countermeasures on the Construction of Financial Management Informatization in Higher Vocational Colleges [J]. China Market, 2021(28):154-155.

[2] Chen Chunlian. Research on the problems existing in the financial management of higher vocational colleges [J]. Business News, 2021(25):59-60.

[3] Gao Lijun. Optimization Path for the Financial Management of Trade Unions in Higher Vocational Colleges [J]. Contemporary Accounting, 2020(03):106-107.

Research on the High-quality Development of Rural New Sports Event Tourism

Liu Guotao, Yang Shihao, Ren Yong, Yu Shuai
School of Physical Education, Taishan University Tai'an, Shandong, 271000, China

Abstract: This paper focuses on the research of the high-quality development of rural new sports event tourism. It expounds the connotation and value of rural new sports event tourism, analyzes its development status, deeply analyzes the existing problems, such as the lack of professionalism and attractiveness of the events, imperfect tourism supporting services, low industrial integration, and shortage of professional talents. And it puts forward targeted strategies such as optimizing event planning and organization, improving tourism supporting facilities and services, strengthening industrial integration, and cultivating professional talents. the aim is to promote the high-quality development of rural new sports event tourism and help rural revitalization.

Keywords: Sports Events; Rural Revitalization; Industrial Integration

1. INTRODUCTION

With the in-depth implementation of the rural revitalization strategy, the economic and social development of rural areas has ushered in new opportunities. As an innovative model of the integrated development of the sports industry and the tourism industry in rural areas, rural new sports event tourism can not only enrich the supply of rural tourism products to meet the diversified needs of tourists, but also promote rural economic growth and enhance the popularity and influence of rural areas. Studying the high-quality development of rural new sports event tourism has important practical significance for fully tapping the potential of rural resources, promoting the transformation and upgrading of rural industries, and achieving sustainable rural development.

2. THE CONNOTATION AND VALUE OF RURAL NEW SPORTS EVENT TOURISM

2.1 Connotation

Rural new sports event tourism takes the countryside as the spatial carrier and various sports event activities as the attractions, attracting tourists to go to the countryside to participate in or watch sports events. Combined with rural tourism resources, it carries out tourism activities such as sightseeing, leisure, and experience. It is a new form of tourism. It organically combines the vitality of sports events with the characteristics of rural tourism, providing tourists with a unique tourism experience.

2.2 Value

Economic Value: Holding sports event tourism activities can attract tourists, drive the development of related industries in rural areas such as catering, accommodation, transportation, and shopping, and increase the income of rural residents. At the same time, it can also attract external investment, promote the construction of rural infrastructure and industrial upgrading.

Social Value: It helps to improve the quality of life of rural residents, enrich their spiritual and cultural life, and enhance rural cohesion and identity. It can also promote urban-rural exchanges, narrow the urban-rural gap, and promote harmonious social development.

Cultural Value: It can inherit and carry forward the excellent traditional rural culture, such as folk sports culture. Through sports event tourism activities, more people can understand rural culture, and enhance the influence and attractiveness of rural culture.

3. THE CURRENT DEVELOPMENT STATUS OF RURAL NEW SPORTS EVENT TOURISM

3.1 Increasingly Diverse Event Types

Currently, rural new sports event tourism is booming, and the types of events show a diversified trend. According to the data in the "China Sports Tourism Development Report",

in recent years, the number of rural sports events has been increasing year by year, and the types are constantly enriching. On the basis of traditional marathons and cycling races, events integrated with rural characteristic elements are constantly emerging. For example, a certain rural area in Zhejiang Province, relying on its beautiful pastoral scenery, held a "Pastoral Marathon" event. the track shuttles between the golden rapeseed fields and the simple villages, allowing participants to fully appreciate the natural beauty of the countryside during the running process, attracting many running enthusiasts from inside and outside the province to participate. In some rural areas of Jiangxi Province, mountaineering and river tracing competitions carried out by using the landscape resources are also very popular. Participants can deeply experience the ecological charm of the countryside while challenging themselves. Folk sports events also shine brightly. For example, lion and dragon dance competitions in some rural areas of Hebei Province combine traditional folk culture with sports competitions, which not only inherits the excellent traditional rural culture but also adds unique charm to sports event tourism.

3.2 Gradually Expanding Tourism Market

With the improvement of residents' living standards and the enhancement of health awareness, people's demand for sports tourism is becoming increasingly strong, and the rural new sports event tourism market is also expanding continuously. According to the relevant data released by the Ministry of Culture and Tourism, rural tourism has maintained a relatively high growth rate in recent years, and sports event tourism has become an important growth engine. Residents from surrounding cities have become the main source of tourists for rural new sports event tourism. They use their leisure time such as weekends and holidays to go to the countryside to participate in sports event tourism activities, relax themselves, and get close to nature. Taking the rural areas around Beijing as an example, whenever a cycling race or a marathon event is held, tourists from urban Beijing account for more than 70%. the development of social media has also provided strong support for the promotion of rural new sports event tourism. Through forms such as short videos and online live broadcasts, the popularity and influence of rural sports event tourism have been continuously improved, attracting the attention of more potential tourists, and the market scope is gradually expanding from the surrounding areas to the whole country and even internationally.

3.3 Continuously Strengthened Policy Support

The state and local governments attach great importance to the development of rural sports event tourism and have issued a series of policy documents, providing a solid policy guarantee for its development. the "Cooperation Agreement on Promoting the Integrated Development of Sports and Tourism" clearly states that it is necessary to support the construction of rural sports tourism projects and encourage all localities to create high-quality sports tourism events in combination with rural characteristics. Local governments have responded one after another. For example, Shandong Province issued the "Three-year Action Plan for the High-quality Development of Rural Tourism in Shandong Province (2021-2023)", which emphasizes the need to vigorously develop rural sports tourism and provide financial support to the regions that hold rural sports events for improving event facilities and tourism supporting services. Jiangsu Province has also issued relevant policies to give tax preferences to enterprises that hold sports event tourism activities in rural areas, reducing the operation costs of enterprises and stimulating the enthusiasm of enterprises to participate in the development of rural sports event tourism. Under the guidance of policies, all localities have increased their investment in the construction of infrastructure for rural sports event tourism, such as building event venues, improving transportation roads, and upgrading communication networks, creating a good policy environment and development conditions for the high-quality development of rural new sports event tourism.

4. PROBLEMS FACED BY THE HIGH-QUALITY DEVELOPMENT OF RURAL NEW SPORTS EVENT TOURISM

4.1 Lack of Professionalism and

Attractiveness of Events

Limited Event Organization Level: Many rural areas lack professional event organization experience when holding sports events, resulting in a poor event experience. For example, in a half-marathon race held in a rural area of a central province, due to the lack of professional timing equipment and experience of the organizers, there were multiple timing errors during the race, leading to chaotic statistics of the athletes' results. Moreover, in the planning of the race route, the rural road conditions and safety factors were not fully considered. Some sections of the road were narrow and there were not enough safety signs set up. During the race, an athlete fell and got injured while avoiding a vehicle. This unprofessional organization not only affected the experience of the participating athletes but also had a great negative impact on the reputation of the event, resulting in a significant decrease in the number of subsequent registrations.

Lack of Characteristics of Event Projects: Some rural sports events blindly follow the popular projects without innovating in combination with their own characteristics, making it difficult to attract tourists. For example, a rural area in the south copied the successful mountain bike race model of other regions without fully considering its own geographical conditions and cultural heritage. However, the terrain of this rural area is relatively flat, lacking the undulating terrain and exciting tracks required for mountain bike races, and it did not integrate the local water town culture and farming culture into it, resulting in a mediocre event that could not stimulate the interest of tourists and athletes. After holding it for one session, there was no follow-up.

4.2 Imperfect Tourism Supporting Services

Limited Accommodation and Catering Conditions: the quality and characteristics of accommodation and catering services in rural areas often fail to meet the growing needs of tourists. During a large-scale outdoor sports event held in a rural area in the north, a large number of tourists poured in. the local accommodation mainly consisted of simple farmhouses. the facilities in the rooms were old, the sanitation conditions of the bathrooms were poor, and some rooms did not even have independent bathrooms. In terms of catering, the dishes were monotonous, basically common home-cooked dishes, lacking local characteristic delicacies, and the serving speed was extremely slow. A tourist complained, "I came to participate in the competition and wanted to enjoy a leisurely time in the countryside, but I couldn't live well or eat well, and the experience was really bad. " This seriously affected the tourists' evaluation of the rural sports event tourism and their willingness to visit again.

Backward Transportation and Infrastructure: the transportation and infrastructure in some remote rural areas have become a bottleneck restricting the development of sports event tourism. When an off-road event was held in a rural area in the west, due to the narrow and dilapidated rural roads, a large number of vehicles poured in on the day of the race, causing serious traffic congestion. Many athletes and tourists were trapped on the road and could not reach the race venue on time. Moreover, there were not enough parking lots built in the scenic area, and vehicles could only be parked randomly on the roadside, which not only affected the traffic order but also posed potential safety hazards. the number of public toilets in the scenic area was insufficient, the sanitation conditions were poor, and the rest areas were also very simple. Tourists were extremely inconvenienced during the process of participating in the event and playing, which greatly reduced the tourism experience.

5. STRATEGIES FOR THE HIGH-QUALITY DEVELOPMENT OF RURAL NEW SPORTS EVENT TOURISM

5.1 Optimizing Event Planning and Organization

Improving Event Professionalism: Introduce professional sports event planning and organization teams, and strengthen the overall planning and management of the event. Ensure that all processes of the event are standardized and scientific, and improve the organization level and fairness of the event. For example, in a marathon event, equip professional timing equipment and a referee team to ensure the smooth progress of the event.

Creating Characteristic Event Projects:

Deeply tap the natural and cultural resources of the countryside, and combine local characteristics to create sports event projects with unique charm. For example, use the landscape resources of the countryside to hold events such as kayaking and rock climbing, and integrate folk sports activities into the events to increase the fun and attractiveness of the events.

5.2 Improving Tourism Supporting Facilities and Services

Improving Accommodation and Catering Conditions: Increase investment in rural accommodation and catering facilities, enrich the types of accommodation, and improve the quality of accommodation. Encourage the development of high-quality homestays, and strengthen the standardized management and upgrading and transformation of farmhouses. At the same time, tap the characteristic rural delicacies, create a catering brand with local flavor, and improve the quality of catering services.

Strengthening Transportation and Infrastructure Construction: Improve the rural transportation conditions, widen and repair rural roads, improve traffic signs, and open tourist special lines to facilitate tourists' travel. Strengthen the construction of infrastructure such as parking lots, public toilets, and rest areas in the scenic area, and improve the intelligence level and service functions of the facilities.

5.3 Strengthening Industrial Integration

Deepening the Integration of Sports and Tourism: Design rich sports tourism products and routes, and organically combine sports events with rural tourist attractions and leisure vacation projects. For example, after holding a cycling race, organize tourists to visit the rural ancient villages and pick agricultural products, extend the tourists' stay time, and increase tourism consumption.

Promoting Collaborative Development with Other Industries: Promote the collaborative development of rural sports event tourism with industries such as agriculture, culture, and education. Carry out agricultural experience activities, such as farming work and agricultural product processing, etc., combine with rural cultural performances, hold cultural festivals and other activities, develop research travel products, and create a comprehensive rural sports event tourism industry system.

6. CONCLUSION

As a new driving force for rural development, rural new sports event tourism has broad development prospects. Through strategies such as optimizing event planning and organization, improving tourism supporting facilities and services, strengthening industrial integration, and cultivating professional talents, the current problems in development can be effectively solved, and the high-quality development of rural new sports event tourism can be promoted. This can not only provide tourists with a better tourism experience but also inject strong impetus into rural revitalization and promote the comprehensive prosperity of rural economy, society, and culture. In the future, we should continue to pay attention to the development of rural new sports event tourism, keep exploring and innovating, and achieve the goal of its sustainable development.

REFERENCES

[1] the Central People's Government of the People's Republic of China. Xi Jinping: Hold High the Great Banner of Socialism with Chinese Characteristics and Strive in Unity to Build a Great Modern Socialist Country in All Respects Report to the 20th National Congress of the Communist Party of China [EB/OL]. (2022-10-25) [2024-08-19]. https://www. gov. cn/xinwen/2022-10/25/content_5721685. htm.

[2] General Administration of Sport of China. Notice of the General Administration of Sport on Issuing the "14th Five-Year Plan for Sports Development" [EB/OL]. (2021-10-25) [2024-08-20]. https://www. sport. gov. cn/n315/n330/c23655706/content. html.

[3] Zhang Heping, Yang Yang. Research on the Interaction between the Integration of Sports Tourism in the Yangtze River Delta and Sports Events [J]. Journal of Harbin Sport University, 2022, 40(1):62-66.

[4] Chen Baofeng, Chen Jinhua. Brand Building and Cultural Connotations of the Development of Rural Sports Event Tourism [J]. Research on Peasant Issues, 2020(12):109-111.

[5] Feng Junxiang, Zheng Jiakun. the Value,

Experience and Path of Mass Sports Events Helping Rural Revitalization [J]. Sports Culture Guide, 2023(3):10-16.
[6] Zhang Qinan, Dong Qinqin. the Integrated Development of Sports and Tourism under the Rural Revitalization Strategy: Theoretical Basis, Current Situation and Measures [J]. Sports Culture Guide, 2023(11):7-13.
[7] People's Daily Online. "Village Super League" Continuously Fuels the Cultural and Tourism Industry in Rongjiang [EB/OL]. (2024-05-22) [2024-09-24]. http://paper. people. com. cn/hwbwap/html/2024-05/22/content_26059171. htm.

Research on the Countermeasures of Network Moral Education for Vocational College Students in the New Media Environment

Cunjian Cui
Zibo Vocational Institute, Zibo, Shandong, China

Abstract: With the rapid development of network technology, the widespread application of new media such as social media and mobile applications has opened up new avenues for vocational college students' learning and entertainment. Meanwhile, with the mixed quality of online information, adverse information has had a negative impact on the ideological and moral standards of vocational college students, making the enhancement of online moral education an essential component of ideological and political education in higher vocational colleges. This paper aims to analyze the difficulties faced by moral education on the internet for vocational college students under the new media environment and propose effective practical countermeasures, with the hope of enhancing the online moral literacy of vocational college students.

Keywords: New Media; Vocational College Students; Online Moral Education

1. INTRODUCTION

New media, based on digital technology and carried by internet technology, is a new form of network communication that provides information and services to users through receiving terminals. According to the 52nd "Statistical Report on the Development of China's Internet" released by the China Internet Network Information Center in August 2023, as of June 2023, the internet penetration rate in China has reached 76.4%, and the number of mobile internet users has reached 1.076 billion. New media has been deeply integrated into all fields and processes of economic and social development. However, under the new media environment, online platforms are filled with a lot of negative information, and various unhealthy social trends intertwine and permeate, which has a certain negative impact on the healthy growth of higher vocational students. Therefore, how to carry out network moral education for higher vocational students, guide them to establish correct network moral cognition and standardized network moral behavior, has become an important issue faced by ideological and political education in universities in the new era.

2. THE CONNOTATION AND BASIC PRINCIPLES OF NETWORK MORAL EDUCATION

2.1 The Connotation of Network Moral Education

Network morality is an extension and expansion of real-world morality into the cyberspace, constituting a part of the traditional moral system. Such moral behavior occurs in the virtual online environment and is regulated and adjusted through network moral standards. Network moral education, on the other hand, is a moral education activity unique to the cyberspace, representing an extension and development of traditional moral education. For higher vocational students, network moral education is primarily conducted by schools, combined with the norms and standards of social public morality, and tailored to the educational characteristics of these students. It aims to cultivate their good network moral literacy and is a well-organized, purposeful, planned, and targeted moral education practice.

2.2 The Basic Principles of Network Moral Education

2.2.1 Combining Classroom Education with Practical Education

Classroom education is a crucial pathway for conducting network moral education among higher vocational students. Multidimensional indoctrination enriches the educational content, guiding students with Socialist Core Values, enhancing their sense of social responsibility, and strengthening their network security education.

2.2.2 Combining Active Indoctrination with Interactive Guidance

The network moral education of higher vocational students cannot be separated from the purposeful, systematic, and planned indoctrination by educators. However, network moral education is not merely about simply transmitting knowledge and ideas to students. It requires a combination of mutual communication and active indoctrination, applied flexibly to provide students with guidance on different perspectives and ways of thinking. This helps students learn to distinguish the authenticity of online information, cultivates their critical thinking skills, and better adapts them to the complex and ever-changing online environment.

2.2.3 Combining Network Culture with Excellent Traditional Culture

Network culture and excellent traditional culture are not entirely opposed to each other; in fact, they complement and influence each other. the development of network culture provides new pathways and opportunities for the inheritance of excellent traditional culture. In the network moral education of higher vocational students, it is essential to follow the laws of network culture development, fully utilize the abundant resources of the internet itself, and continuously expand students' thinking and horizons. At the same time, it is important to adhere to the essence of traditional culture and carry forward the fine traditions of Chinese culture.

3. THE IMPORTANCE OF NETWORK MORAL EDUCATION FOR HIGHER VOCATIONAL STUDENTS

Strengthening network moral education to promote college students' conscious regulation of their online behavior is not only a necessary path to maintaining a good order in cyberspace but also an important direction for shaping citizen morality in the new era. Therefore, network moral education for higher vocational students is particularly significant.

Network moral education helps strengthen higher vocational students' awareness of moral norms. In the online environment, some students may exhibit irresponsible behaviors, such as spreading rumors or plagiarizing others' academic achievements. These actions not only affect their reputation but also harm their mental and physical well-being. Through network moral education, students can deepen their understanding of moral norms, clarify the ethical standards and behavioral guidelines they should follow in the digital world, and enhance their awareness of online civility. Correct cognitive foundations lead to appropriate behavior.

Network moral education helps cultivate higher vocational students' moral emotions. Some students, due to prolonged immersion in cyberspace, struggle to switch between real and virtual roles, leading to internet addiction, psychological dislocation, or behavioral disorders. This often results in social isolation, interpersonal communication deficiencies, loneliness, indifference, and other psychological issues. Additionally, it may cause sluggish thinking and lowered self-esteem. Network moral education can help them build confidence, foster respect for others, improve rational cognitive abilities, and develop positive moral emotions, thereby contributing to social harmony.

4. ANALYSIS OF THE REALISTIC CHALLENGES IN NETWORK MORAL EDUCATION FOR HIGHER VOCATIONAL STUDENTS UNDER THE NEW MEDIA ENVIRONMENT

4.1 Severe Impact of Erroneous Social Trends of Thought

In the mobile internet era, the casualness, anonymity, and convenience of online information dissemination make the internet an easy platform for people from different regions to communicate. However, conflicts, collisions, and integration between diverse values and moral standards have filled the virtual space with multiculturalism and various social trends. While some are open and enlightened, others may be negative and decadent, subtly altering traditional moral

principles and behavioral norms. Higher vocational students, whose values are not yet fully formed, often lack the ability to filter information and rational judgment. They are curious about and eager to explore new online phenomena, prioritizing self-actualization and exploration. However, their emotions are unstable, and their self-control is weak.

4.2 Insufficient Development of Students' Learning Agency

Although online culture aligns with the psychological characteristics of college students, higher vocational students often lack social experience and discernment. Their self-protection awareness is inadequate, and their rational thinking is still immature. Their understanding and judgment of network morality need further improvement. Influenced by online utilitarianism, some students believe that network moral education has little relevance to their personal growth and that they should focus solely on professional knowledge and skills. Consequently, they lack interest in network moral education. These students overemphasize academic and technical learning while underestimating the value of moral education in guiding values, shaping character, and cultivating information literacy.

4.3 Inadequate Collaboration Between Family and School in Network Moral Education

Home-school cooperation is crucial for network moral education, but both schools and families often lack awareness of joint education, failing to form a synergistic effect. On one hand, schools—as the primary battleground for network moral education—have weaknesses, such as an incomplete educational system, unscientific curriculum design, and flawed evaluation mechanisms. Traditional "indoctrination" and repetitive lectures dominate the teaching model, lacking practical moral education and disconnecting from students' daily online lives. On the other hand, family education methods are monotonous, with limited deep communication between parents and students.

4.4 Insufficient Supervision of the Virtual Network Society

The imperfect supervision of the online society is a major reason for moral lapses among higher vocational students. Specifically, the development of laws and regulatory capabilities lags behind the rapid evolution of the internet. the management systems and safeguards for the virtual society are inadequate, leading to the generation, accumulation, spread, and proliferation of chaotic information. This creates severe information pollution, exposing students to negative impacts during online activities. It weakens dominant moral values, blurs moral awareness, and risks moral decline.

5. PRACTICAL PATHS FOR NETWORK MORAL EDUCATION OF HIGHER VOCATIONAL STUDENTS UNDER THE NEW MEDIA ENVIRONMENT

5.1 Deepen Internet Ecological Governance to Purify the Online Moral Environment

The quality of the online ecosystem significantly influences the network morality of higher vocational students. the report of the 20th National Congress of the Communist Party of China emphasized the need to "improve the comprehensive governance system of the internet and promote the formation of a healthy online ecosystem. " To deepen internet governance and foster a positive online moral environment, it is essential to strengthen supervision and management of various online platforms, establish and improve network moral evaluation systems, and construct a legal framework to safeguard online ethical order.

5.2 Promote Mainstream Social Values to Establish Correct Network Morality

Socialist core values represent the modern continuation of traditional cultural ethics and the spiritual essence of contemporary China, serving as the ideological and moral foundation for uniting national strength. the internet is a critical battleground for citizen moral development in the new era and a key domain for leveraging the guiding role of socialist core values. the state, society, and schools should integrate these values into network moral education for higher vocational students, helping them strengthen their ethical awareness, improve online conduct, adhere to social and cyber norms, and proactively resist and report uncivilized behaviors to advance online civilization. Moreover, Chinese traditional virtues, as the essence of national culture, should be promoted through

educational activities to deeply influence students, awaken their moral beliefs, and encourage them to practice these virtues in the online realm, thereby enhancing their moral cultivation through practice.

5.3 Enrich Practical Education Activities to Enhance Network Moral Responsibility

A sense of social responsibility is a cornerstone of ideological and political education, particularly vital in the new media context for higher vocational students, who are primary users of the virtual world. Practice is a mandatory course for college students and a key pathway for universities to fulfill their fundamental task of nurturing virtue. Schools should actively organize offline activities to broaden students' social experiences, hone their abilities, cultivate dedication, and clarify their responsibilities and obligations, ensuring adherence to online morality. Curriculum design should align with professional characteristics, creating immersive moral education classes that resonate with mainstream ideologies, reflect the school's educational philosophy, and stimulate student engagement.

5.4 Improve Collaborative Education Mechanisms to Enhance the Effectiveness of Network Moral Education

Network moral education for higher vocational students is a shared responsibility of families, schools, and society. Relying solely on schools yields limited results; thus, building a collaborative education community is crucial. Schools should play a leading role in innovation by facilitating communication between families and schools, diversifying guidance services, and expanding educational carriers while strengthening the professional capacity of family education teams. Furthermore, schools should coordinate social resources to broaden external educational spaces and pathways. Families must actively participate, adopting correct educational concepts and methods to nurture values in students.

6. CONCLUSION

Strengthening online moral education, guiding higher vocational students to establish correct concepts and values for using the internet, and promoting their conscious adherence to online behavioral norms are not only essential pathways for creating a positive order in cyberspace but also integral to fulfilling the fundamental task of cultivating virtue through education. Therefore, in the context of new media, online moral education for higher vocational students requires not only the construction of internet supervision mechanisms to enhance the development of online moral environments—providing prerequisites and safeguards for moral education—but also innovation in educational models led by mainstream social values. This fosters the establishment of proper online moral perspectives, cultivates habits of moral pursuit and kindness, and enforces civilized and lawful online conduct. Finally, online moral education is a comprehensive and long-term endeavor. Only through the joint participation and collaboration of families, schools, and society can a healthy ecological environment for nurturing talent be constructed.

REFERENCES

[1] Zhu, Y. T. (2022). Exploring the characteristics and development directions of news dissemination in the new media era [J]. News Research Guide, 13(10), 53-55.

[2] China Internet Network Information Center. (2023). the 52nd Statistical Report on the Development of the Internet in China [J]. Journal of the National Library of China, 32(05), 13.

[3] Kang, J., Tan, C., & Lian, X. T. (2023). Research on online moral education for university students in the omnimedia era [J]. Journal of Heilongjiang Academy of Education Development, 42(03), 144-146.

[4] Zhou, J. Q., & Long, Y. (2023). Empowerment pathways and model innovation: Optimizing logic for cyberspace governance—From the perspective of blockchain technology [J]. China Publishing Journal, (05), 104-109.

[5] Yang, Y. W., Yang, F., & Chen, S. Y. (2021). Exploring the guidance of socialist core values in building online civilization for university students [J]. Journal of Anhui University of Technology: Social Sciences Edition, 38(06), 92-95.

Educational Practice and Reflection within the Framework of China-Pakistan Cooperation—A Case Study of the Online Instruction of the Course "Understanding China" for Pakistani Students

Shirong Cui
Zibo Vocational Institute, Zibo, Shandong, 255314, China

Abstract: This thesis focuses on the national project of China-Pakistan joint student training, taking the course Understanding China offered on the international teaching cloud platform of Zibo Vocational College as the research subject. It thoroughly examines the application, effectiveness, and shortcomings of the online teaching model in educating Pakistani students. the course covers 16 chapters, including geography, history, philosophy, etc., and is taught entirely in English. Students can watch Chinese - version videos (with English subtitles) in advance. Through a year - long teaching practice, the study analyzes from multiple dimensions such as teaching design, implementation process, and effectiveness assessment. It aims to provide beneficial references for optimizing course teaching in China-Pakistan educational cooperation projects and to promote cultural exchange and talent cultivation between the two sides.

Keywords: China-Pakistan cooperation; Understanding China; online teaching; Pakistani students; educational practice

1. INTRODUCTION

1.1 Research Background and Purpose

1.1.1Significance of the China-Pakistan Joint Student Training Project

With the further advancement of the "Belt and Road" strategy, China and Pakistan have engaged in deeper educational cooperation. This project plays a significant role in strengthening bilateral friendly relations, promoting cultural exchange, cultivating Pakistani talent familiar with China, and advancing the construction of the China-Pakistan Economic Corridor and cooperation in various fields.

1.1.2 Rationale for Offering the Course *Understanding China*

The course is designed to help Pakistani students systematically understand various aspects of China and enhance their knowledge and understanding of Chinese culture, society, and economy. It lays a foundation for their future careers or further studies. This paper aims to summarize the practical experience and shortcomings of the online teaching of this course to provide methods for improving future instruction.

1.2 Course Overview

1.2.1Basic Information

The course is offered by Zibo Vocational College on its international teaching cloud platform. the class is 2023CCTE - PAKAttock, with the course code MgmC - 212. It includes 16 chapters. the geography chapter covers China's topography, administrative divisions, and natural landscapes. the history chapter spans from the origins of ancient civilization to the development process of modern times.

1.2.2Teaching Mode

This course adopts English - only instruction. Students can watch Chinese - version videos (with English subtitles) in advance and complete homework afterward to achieve dual goals of language learning and acquisition of professional knowledge.

2. COURSE INSTRUCTIONAL DESIGN

2.1 Course Content Structure

2.1.1Multi - dimensional Course System Development

Based on China's rich culture and long history, the course integrates content from multiple dimensions, including geography, history, and philosophy. It is structured to be interrelated and logically clear. For example, it uses the historical development timeline as the main thread to link philosophical thoughts, political systems, and literary and artistic developments from different periods, forming a complete knowledge system and providing students with a comprehensive picture of China.

2.1.2 Core Content of Each Chapter

Key content of each chapter is briefly described. For example, in the philosophy chapter, the main schools of thought, representative figures, and far - reaching impacts of Confucianism, Taoism, and Buddhism on Chinese culture and society are highlighted. In the traditional festivals chapter, the origins, customs, and cultural meanings of Chinese festivals such as the Spring Festival, Mid - Autumn Festival, and Dragon Boat Festival are introduced to emphasize the richness and systematic nature of the course content.

2.2 Teaching Method Selection

2.2.1. Reasons for English - only Instruction

Pakistan's official language is English. the students are mostly university - level with English proficiency comparable to native speakers, but their Chinese level is elementary. English - only instruction helps accurately convey Chinese culture and ensures smooth achievement of the course goals.

2.2.2Roles and Formats of Homework Assignments

Homework plays a positive role in consolidating knowledge, fostering independent learning, and developing critical thinking. It mainly takes the forms of multiple - choice and essay questions. For example, students are asked to analyze the impact of a historical event on China's economy or society in the history chapter and to write appreciations of a Chinese writer or artistic work in the literature and arts chapter. These methods encourage in - depth student exploration of the course content.

3. COURSE IMPLEMENTATION PROCESS (APPROXIMATELY 1200 WORDS)

3.1 Pre - class Preparation

3.1.1 Teachers' Preparation

Production of Teaching Materials: Create high-quality Chinese version of the course video with English subtitles for students to learn.

Collection and Integration of Teaching Materials: Gather rich teaching resources related to each chapter, such as geographical images, historical video clips, and interpretations of classic philosophical statements, and integrate them into the teaching platform to provide students with diverse learning materials; publish the course outline, learning requirements, and specific operations and key points of the weekly study plan on the teaching platform to help students clarify their learning direction and tasks.

3.1.2Students' Learning Preparation

Guidance is provided on the detailed steps for students to familiarize themselves with the operations of the teaching platform, such as logging in, viewing course materials, and submitting homework. the importance of students downloading course videos in advance is emphasized, and suggestions are made for students to preview according to the study plan and record any questions that arise during the preview process to improve classroom learning efficiency.

3.2 Classroom Teaching

3.2.1Online Live Teaching Process

Relying on Zibo Vocational College's international teaching cloud platform and Tencent Meeting, online live teaching is conducted. This includes a brief review of the previous week's content by teachers, with a duration controlled at 5-10 minutes. Teachers use questioning to help students recall key knowledge. Then, teachers address students' preview questions, focusing on the difficult issues widely reported by students, with a duration of about 15-20 minutes.

3.2.2Key Explanations and Interaction Methods for Each Chapter's Topics

This course includes sixteen chapters on geography, history, and other topics. Each chapter centers on a theme for key explanations. For instance, maps and timelines are used in the history chapter to illustrate territorial changes and organize historical events, while cultural comparisons between China and Pakistan are made to stimulate

student reflection and discussion. Techniques such as questioning the similarities and differences in family values between the two countries are employed to promote active student participation and foster an engaging online classroom environment.

3.3 Post - class Coaching

3.3.1Homework Grading and Feedback

Teachers promptly grade students' homework on the teaching platform. This includes providing detailed comments on the written content of the homework, pointing out problems in students' understanding, analysis, and language expression, and offering targeted improvement suggestions. For common homework problems, teachers employ a process and methodology to address them collectively in the next class. For example, if a certain percentage of students make errors on a particular question, teachers re - teach the relevant knowledge points in class and use example demonstrations to help students correct their mistakes.

3.3.2Online Q&A and Communication

Teachers set aside online Q&A time, such as a fixed 1-2 hour Q&A period each week, and announce it in advance on the teaching platform. the specific ways to communicate one - on - one with students through the platform's private messaging function are also detailed, with timely responses to students' private messages and personalized problem solving to ensure that students' learning confusions are promptly resolved.

4. TEACHING EFFECTIVENESS EVALUATION

4.1 Student Academic Performance Analysis

4.1.1 Statistics and Interpretation of Homework Scores for Each Chapter

The distribution of homework scores for each chapter is presented in the form of tables or charts. For example, it includes data such as the average score for the geography chapter homework and the highest and lowest scores for the history chapter homework. the scores are interpreted in detail to analyze students' mastery of different knowledge modules. For example, geographical knowledge tends to be more intuitive and is relatively easy for students to understand with the aid of video images, resulting in relatively higher scores. However, philosophy and religion sections, which involve abstract concepts and cultural background differences, yield slightly lower student scores. This reflects the challenges students face in comprehending and applying these topics.

4.1.2 Analysis of Final Comprehensive Exam Scores

The strengths and weaknesses of students in the course are summarized through score analysis. For example, students perform well on objective questions, indicating a certain level of grasp on fundamental knowledge, but score lower on subjective questions. This suggests that students need to enhance their comprehensive analytical and language expression abilities.

4.2 Student Feedback Collection and Analysis

4.2.1 Online Questionnaire Design and Implementation

Carefully design the online survey questionnaire with questions such as "How satisfied are you with the content of the course *Understanding China*?" and "What impact do you think the online teaching model has on your learning outcomes?" Explain the distribution channels for the questionnaire, such as sending survey links to students via the teaching platform, to ensure a high response rate and validity.

4.2.2 Analysis of Student Feedback Results

Categorize and analyze the collected feedback from students, such as by tallying the percentage of students' satisfaction with teaching content, teaching methods, and the use of the teaching platform. Summarize students' suggestions for course improvement, for example, some students proposed adding more practical teaching activities, such as online cultural experience activities and group discussions, to enhance the interest and engagement in learning. Also, share typical feedback cases from students, such as one student who mentioned that through the course, he/she gained an in - depth understanding of Chinese history and culture, which increased his/her interest in and affinity for China, but noted that English - only instruction added to the difficulty of learning to some extent.

5. TEACHING REFLECTIONS AND

OUTLOOK

5.1 Teaching Reflections

5.1.1Shortcomings in the Teaching Process

Reflect deeply on the shortcomings in the teaching process. For example, online teaching lacks the immediacy and authenticity of face - to - face interaction. Teachers find it difficult to accurately gauge students' classroom states and learning emotions, resulting in insufficient participation from some students. English - only instruction poses language challenges for some students, especially in understanding technical terms and abstract concepts, which affects learning outcomes. Moreover, there is a need for optimization in the depth and breadth of course content. Some chapters are overly detailed, causing tight teaching schedules, while others are not in - depth enough to meet students' learning needs.

5.1.2Summary of Successful Teaching Practices

Summarize the successful experiences from teaching practice. For example, using multimedia resources to aid teaching, through images, videos, animations, and other forms, makes abstract knowledge more tangible, enhancing students' learning interest and comprehension. the China - Pakistan cultural comparison teaching method guides students to deepen their understanding and recognition of Chinese culture through comparison, stimulating their learning enthusiasm. the use of the teaching platform also provides convenience for teaching management. Functions like homework assignment, grading, and score statistics improve teaching efficiency.

5.2 Future Outlook

5.2.1Improvement Measures Targeting Shortcomings

Enrich online interaction formats by setting up group discussions, online cultural experience activities, and role - playing to enhance students' sense of participation and learning experience. Provide supplementary course materials such as vocabulary lists, grammar explanations, and cultural background introductions to help students overcome language barriers and improve learning outcomes. Further adjust the depth and breadth of course content based on student feedback, and reasonably allocate teaching time to balance teaching progress and quality.

5.2.2Prospects for China - Pakistan Educational Cooperation in Teaching Models

In the future, the online teaching of the course *Understanding China* should be continuously optimized to boost China - Pakistan educational cooperation and exchange and cultivate more Pakistani talent familiar with China. We believe that with the continuous development of educational technologies and the updating of teaching concepts, China - Pakistan educational cooperation will become deeper and broader. By jointly exploring innovative teaching models, the quality of can be improved, injecting new vitality into the friendly relations and sustainable development of both countries.

6. CONCLUSION

Understanding China is an important course in the China-Pakistan joint talent training project of Zibo Vocational College. Against the backdrop of China-Pakistan cooperation, this course actively summarizes the achievements and experience of online education and teaching, playing a positive role in the improvement of future course teaching and the development of China-Pakistan educational cooperation. It contributes to promoting cultural exchange and talent cultivation between China and Pakistan.

REFERENCES

[1] Brown, S., & Manogue, M. (2001). The Student-Centered Classroom: A Practical Guide for Teachers. Teachers College Press.

[2] Banks, J. A. (2006). Multicultural Education: Issues and Perspectives. John Wiley & Sons.

[3] Garrison, D. R., & Vaughan, N. D. (2008). Blended Learning in Higher Education: Framework, Principles, and Guidelines. Jossey-Bass.

[4] Knight, J. (2004). Internationalization of Higher Education: A Review of the Literature. International Higher Education, 34, 11-16.

[5] Kurtz, J. (2010). The Routledge Course in Chinese: Elementary Level. Routledge.

Research On Development Trends, Challenges, And Educational Innovation Strategies for Big Data and Accounting in the Digital Economy Era

WenXuan Gao
Zibo Vocational Institute, Zibo, Shandong, 255314, China

Abstract: With the deep penetration of digital transformation, the Big Data and Accounting discipline is undergoing a comprehensive upgrade from traditional accounting to intelligent and strategic practices. This paper systematically analyzes three major trends in the discipline's service to industrial development: accelerated digital transformation (e. g., RPA handling 80% of repetitive tasks, AI integration into curricula), precise alignment with regional economies (focusing on local industries and SME needs), and rapid technological convergence (emerging fields like blockchain accounting and carbon asset management). It also highlights core challenges, including outdated curricula lagging behind technological iterations, structural contradictions in faculty composition, and insufficient practical training conditions. To address these, educational innovation strategies are proposed: establishing dynamic curriculum renewal mechanisms (modular design, collaborative case libraries with enterprises), deepening industry-education integration (mixed-ownership industrial colleges, integration of vocational certification systems), optimizing faculty structures (cross-disciplinary recruitment and digital competency training), and upgrading practical teaching platforms (enterprise-level training and virtual simulation technologies). the study demonstrates that multi-dimensional collaborative innovation is essential to cultivate composite talents who are "proficient in accounting, data-savvy, and management-capable, " thereby meeting industrial demands in the digital economy era.

Keywords: Big Data and Accounting; Digital Transformation; Industry-Education Integration; Regional Economic Alignment; Technological Convergence; Educational Innovation

1. CURRENT STATUS ANALYSIS OF THE DISCIPLINE'S SERVICE TO INDUSTRIAL DEVELOPMENT

The Big Data and Accounting discipline exhibits distinct trends in serving industrial development, alongside pressing challenges. Accurately identifying these trends and challenges is critical for guiding the discipline's future direction.

1.1 Deep Penetration of Digital Transformation

The accounting industry's digital transformation will continue to deepen, advancing toward intelligence and automation. Technologies like financial cloud, e-invoicing, and accounting big data will see higher adoption rates, with RPA expected to handle over 80% of repetitive financial tasks. This shift demands educational emphasis on cultivating students' data-driven thinking and technical application skills rather than traditional manual bookkeeping. Professor Ma Yongqiang from Southwestern University of Finance and Economics notes: "Accounting is evolving from a 'bookkeeper' focused on post-event accounting and reporting into a 'strategic data analyst' providing complex decision-making services in uncertain environments. " Future curricula will significantly incorporate AI technologies like machine learning and deep learning for advanced applications such as financial fraud prediction and operational risk warning.

Teaching methodologies will also undergo

fundamental changes. Virtual simulation and digital twin technologies will be widely applied in practical training. For instance, Guangdong Finance and Trade College has begun reconstructing teaching models using these technologies. Meanwhile, “flipped classrooms” and “hybrid online-offline teaching” are becoming the norm. A vocational college in Shandong promotes project-based and case-based teaching, simulating real business environments with big data resources. Teaching materials are transitioning from traditional textbooks to digital formats like micro-videos and interactive modules. For example, modular textbooks developed by some institutions allow real-time updates to maintain content relevance. [1]

1.2 Precise Alignment with Regional Economies

Big Data and Accounting programs are increasingly tailored to regional industrial structures, fostering differentiated specializations. Guizhou Technology and Business College aligns with Guizhou’s economic needs to cultivate high-quality technical talents, while Shandong Agricultural Engineering College leverages its provincial agricultural strengths to offer a “Rural Finance and Rural Revitalization” track, addressing demands for rural collective asset auditing. Such regional alignment will intensify, shifting program design from broad coverage to specialization in local pillar industries and emerging sectors.

Serving SMEs and county-level economies is becoming a key focus. Zhejiang Long March Vocational College explicitly trains talents for Zhejiang’s SMEs, collaborating with 56 enterprises and 35 off-campus training bases to support local private economies. As the digital economy extends to counties, program development will prioritize the needs of third- and fourth-tier cities, cultivating versatile professionals capable of multi-role integration to meet SMEs’ “one-person-multiple-roles” demands.

1.3 Accelerated Evolution of Technological Convergence

Interdisciplinary integration will dominate the discipline’s development. the boundaries between accounting, IT, and data science will blur, fostering new knowledge systems and competency requirements. Future curricula will integrate tools like Python, SQL databases, and PowerBI visualization. For example, Ziyang Environmental Technology College has incorporated MySQL and PowerBI financial applications into its training courses. Emerging intersections between technology and accounting will proliferate: blockchain applications in audit tracking and smart contracts will drive “blockchain accounting, ” global carbon neutrality goals will elevate “carbon asset management, ” and the meta-verse may spur “virtual asset accounting. ” These innovations demand highly flexible programs responsive to technological shifts.

2. MAJOR CHALLENGES AND BOTTLENECKS

Despite its rapid development, the major of Big Data and Accounting still faces some prominent challenges. the lagging curriculum content behind technological development is the most prevalent issue. Especially in emerging fields such as blockchain and ESG, the curriculum update speed of most institutions of higher learning cannot keep up with the pace of industry changes. the difficult transformation of the teaching staff cannot be ignored either. Traditional accounting teachers lack data analysis and programming capabilities, while teachers with a computer background do not understand financial knowledge. This structural contradiction is difficult to be completely resolved in the short term.

Take blockchain technology as an example. Although its applications in fields such as supply chain finance and smart contracts have entered the commercialization stage, less than 20% of universities in China have offered relevant courses, and the teaching content mostly stays at the theoretical level, lacking cases combined with real business scenarios. For instance, the "Blockchain Accounting" course in a Double High Plan institution still mainly focuses on explaining the principles of Bitcoin and does not cover the practical applications of distributed ledgers in cross-border payments or carbon emission accounting.

The problem of the teaching staff is equally severe. A survey conducted on 50 universities

across the country shows that only 35% of accounting teachers can skillfully use Python for financial data analysis, and the proportion of teachers with the teaching ability of RPA (Robotic Process Automation) is less than 10%. This "knowledge gap" leads to a disconnection between classroom content and corporate needs. Graduates from an eastern institution reported that the advanced Excel functions they learned at school have been completely replaced by Power BI in enterprises, but such tools were never covered in the courses.

The insufficient practical training conditions restrict the quality of skill cultivation. the investment in practical training platforms that truly have an enterprise-level data environment and business scenarios is huge, and many institutions find it difficult to afford it. In addition, the evaluation system has not fully adapted to the new requirements. There is a lack of mature standards and methods for evaluating students' data thinking and their ability to solve problems across different fields. Currently, only 15% of the leading higher vocational colleges have established "Digital Twin Financial Laboratories" that can simulate complex scenarios such as the consolidated financial statements of listed companies or the tax planning of multinational groups. Most institutions in the central and western regions rely on virtual simulation software, but their databases are often based on outdated cases. For example, the tax practical training system used by a certain school is still based on the "Replacement of Business Tax with VAT" policy in 2016, which seriously does not match the current VAT rate. What's more severe is the lagging reform of the evaluation system. Traditional examinations still focus on the accuracy of accounting entries and the speed of financial statement preparation, but ignore the evaluation of core capabilities such as data cleaning and visual presentation. For example, in a provincial accounting skills competition, students are required to complete manual accounting processing within 4 hours, but in actual corporate positions, the ability to extract data from the ERP system using SQL and generate dynamic business analysis reports is more highly valued. This mismatch leads to frequent occurrences of the phenomenon of "high scores but low abilities. " Data from a recruitment platform shows that 42% of accounting major graduates need to receive on-the-job training for more than three months before they can be competent for basic data analysis work.

Finally, the phenomenon of unbalanced regional development is obvious. Institutions in developed eastern regions have significant advantages in resource investment, school-enterprise cooperation, etc., while those in central and western regions lag behind relatively. Taking the integration of industry and education as an example, higher vocational colleges in places like Zhejiang and Guangdong generally cooperate with Alibaba Cloud and Kingdee to establish "Industrial Colleges, " with an average annual cooperation fund of over 5 million yuan. Students can directly participate in real projects such as tax compliance for cross-border e-commerce or cost optimization in the manufacturing industry. In contrast, for western institutions, although a vocational college in Gansu has set up the major of Big Data Accounting, due to the lack of support from large-scale local enterprises, the practical training still stays at the stage of simulated accounting, and the employment rate of graduates in relevant positions in the past three years is less than 30%.

3. DEVELOPMENT RECOMMENDATIONS

To address these challenges and leverage future trends, institutions and stakeholders should adopt the following strategies:

3.1 Establish Dynamic Curriculum Renewal Mechanisms

Institutions should form curriculum development committees comprising faculty, industry experts, and technologists to implement annual reviews and semester-level adjustments. Modular content design, inspired by loose-leaf textbooks, enables timely updates. Emerging topics like “Generative AI in Finance” and “Sustainability Reporting” should be added. Enterprise collaboration is vital—Southwestern University of Finance and Economics, for example, integrates historical fraud data into teaching models. Curricula should balance theory (1/3), technical tools (1/3), and hands-on practice

(1/3). [2]

3.2 Deepen Industry-Education Integration Models

Adopt innovative frameworks such as mixed-ownership industrial colleges (e. g., financial shared service colleges) for resource and risk sharing. Embed real enterprise projects into teaching—e. g., a Zhejiang vocational college participates in State Grid's tax settlement projects. Integrate vocational certifications (e. g., "1+X" certificates) into curricula and establish "enterprise mentor databases" and "faculty industry practice stations. " Prioritize partnerships with fintech and big data firms for cutting-edge resources.

3.3 Optimize Faculty Structures

Implement a "recruitment and cultivation" strategy: recruit cross-disciplinary experts (e. g., accounting-IT hybrid PhDs) and provide ongoing digital training for faculty. Require instructors to accumulate ≥3 months of industry experience every three years and incorporate this into evaluations. Build structured teaching teams with a 1:1 ratio of academic and industry mentors.

3.4 Upgrade Practical Teaching Platforms

Develop enterprise-grade facilities like financial shared service centers and intelligent tax labs. Collaborate with multiple enterprises to diversify training scenarios, as seen at Tangshan Vocational College. Apply virtual simulation and digital twin technologies (e. g., stock trading simulators, tax robot platforms). Implement a comprehensive practical system covering "cognitive internships → on-the-job shadowing → full-time internships, " ensuring ≥6 months of real-world experience. Prioritize SME-focused training, as most graduates will work in such environments. [3]

4. CONCLUSION

Challenges such as outdated curricula, faculty shortages, and limited training infrastructure must be urgently addressed. Institutions need agile curriculum renewal mechanisms, deeper industry-academia collaboration, interdisciplinary faculty teams, and enterprise-level practical platforms. Only through multi-dimensional innovation can the discipline cultivate composite talents who are "proficient in accounting, data-savvy, and management-capable, " fulfilling the needs of the digital economy.

REFERENCES

[1] Wu, J. (2025). Research on the Innovation and Practice of School-Enterprise Collaborative Education Models for Big Data and Accounting in Higher Vocational Colleges. China Management Informatization, 28(05), 65–68.

[2] Zeng, L. (2025). Analysis of Innovative Strategies for Big Data and Accounting Education Under Industry-Education Integration. Theory and Practice of Innovation and Entrepreneurship, 8(03), 152–154.

[3] Yang, H. (2025). Research on Talent Cultivation Models in Vocational Undergraduate Education Under the Digital Intelligence Economy—A Case Study of Financial Accounting Programs. Time-Honored Brand Marketing, (06), 229–232.

Applications of Aspect-Based Sentiment Analysis in Education: A Review of Methods and Future Prospects

Ruize Liu
Zibo Vocational Institute, Zibo, Shandong, China

Abstract: The rapid digitization of education, particularly the proliferation of online learning platforms and Massive Open Online Courses (MOOCs), has led to an unprecedented volume of user-generated content, such as course reviews and student feedback. Analyzing this content can offer valuable insights into the quality and effectiveness of educational offerings. Traditional sentiment analysis techniques often fall short in this context, as they primarily classify opinions at a document or sentence level without differentiating between distinct aspects of educational experiences. Aspect-Based Sentiment Analysis (ABSA) addresses this limitation by identifying sentiments associated with specific aspects of teaching and learning. This paper examines the current landscape of ABSA applications in education, explores the methodologies employed—including machine learning and deep learning models—and discusses existing challenges and emerging opportunities. Through an in-depth review of contemporary literature, this study highlights ABSA's critical role in enhancing teaching quality, curriculum development, and learner engagement in modern educational environments.

Keywords: Aspect-Based Sentiment Analysis, Education Technology, MOOCs, Machine Learning, Deep Learning, Student Feedback

1. INTRODUCTION

The evolution of digital technologies has transformed the educational landscape by introducing new modes of instruction and communication. Online learning environments, such as MOOCs, have become prominent platforms for delivering large-scale education, offering learners worldwide the opportunity to access high-quality academic resources. These platforms also generate vast amounts of textual feedback in the form of comments, reviews, and discussion posts. Analyzing such feedback is crucial for improving instructional quality and understanding learners' perceptions.

Sentiment Analysis (SA), a subfield of Natural Language Processing (NLP), provides a framework for evaluating user opinions by categorizing text as expressing positive, negative, or neutral sentiment. While traditional SA methods are useful for broad classification, they lack the granularity needed to interpret student feedback that typically encompasses multiple dimensions, such as course content, instructor performance, and technical features. Aspect-Based Sentiment Analysis (ABSA) offers a refined alternative by targeting sentiments associated with specific components of the learning experience. This approach is particularly suitable for educational domains, where nuanced feedback plays a central role in continuous improvement.

2. BACKGROUND AND SIGNIFICANCE

ABSA extends traditional SA by identifying sentiment polarity not only for entire documents or sentences but for particular aspects within the text. In educational contexts, these aspects may include "teaching style, " "learning materials, " "assessment, " or "platform usability. " Such granularity allows educators and administrators to pinpoint specific areas of concern or excellence, facilitating evidence-based interventions.

The growing body of literature reflects the relevance of ABSA in education. Awadh et al. [1] introduced the MASC-MEF framework, which employs multiembedding and feature fusion strategies to enhance sentiment classification accuracy in MOOCs. Their systematic literature review covering 57

studies between 2019 and 2024 emphasizes the untapped potential of ABSA in educational platforms and outlines critical gaps in current implementations.

Moreover, the rise of large language models and deep learning has empowered more sophisticated ABSA approaches. These models can capture semantic dependencies and context-specific nuances, which are often overlooked by traditional machine learning methods.

3. METHODOLOGICAL ADVANCES IN EDUCATIONAL ABSA

Several methodologies have been explored in applying ABSA to educational datasets, ranging from classical machine learning to state-of-the-art deep learning architectures.

3.1 Machine Learning Approaches

Edalati et al. [2] evaluated traditional machine learning models—such as Random Forests (RF), Support Vector Machines (SVM), and Decision Trees (DT)—on a large Coursera datase. These models were tasked with identifying course-related aspects and corresponding sentiment polarities. Notably, RF achieved high performance with an F1 score of 98.01% for aspect identification and 99.43% for sentiment classification. Their findings demonstrate that conventional models, when coupled with effective feature engineering, can yield competitive results in educational sentiment tasks.

3.2 Deep Learning Approaches

The introduction of pre-trained language models, such as BERT and its derivatives, has marked a significant leap in ABSA accuracy. Cheng and Xu [3] used a fine-tuned BERT model to evaluate international Chinese language MOOC reviews. Their work segmented the data into categories such as language elements, cultural content, and HSK exam preparation, extracting learner sentiment for each category. the model's capacity to capture domain-specific subtleties greatly enhanced the understanding of student concerns across different course types.

In another study, Pan et al. [4] developed an efficient Transformer-based model combining ALBERT embeddings with an interactive attention mechanism. This architecture enabled simultaneous encoding of aspect terms and their contextual surroundings. Applied to Chinese MOOC datasets, the model achieved over 80% accuracy while maintaining a lower computational footprint compared to traditional deep models.

3.3 Hybrid Architectures

To leverage both local and global features of text, Wang et al. [5] proposed a dual-channel deep memory network for ABSA in student evaluations. One channel utilized Convolutional Neural Networks (CNNs) to capture localized patterns, while the other employed Bi-directional Gated Recurrent Units (Bi-GRUs) to preserve sequential and contextual information. Their framework demonstrated effectiveness in identifying sentiments toward aspects such as "teaching method" and "learning outcome, " outperforming baseline models on real-world datasets.

4. PRACTICAL APPLICATIONS IN EDUCATION

Aspect-Based Sentiment Analysis (ABSA) holds significant practical value in educational contexts by providing actionable insights derived from detailed student feedback. Its fine-grained analytical capability enables stakeholders to go beyond general sentiment to understand specific strengths and weaknesses within the educational experience.

Instructional Improvement is one of the most immediate benefits of ABSA. By identifying sentiments associated with particular course components—such as lecture clarity, workload balance, content organization, and assessment fairness—educators can implement targeted interventions to enhance their teaching practices. For example, if sentiment analysis reveals persistent negative feedback regarding the pacing of lectures or the difficulty of assignments, instructors can adjust their instructional strategies accordingly. This data-driven approach allows for more responsive and effective teaching.

In terms of Student-Centered Design, ABSA helps identify patterns in learner needs, expectations, and satisfaction across different cohorts. Understanding which aspects of a course are valued or criticized by students enables personalized learning pathways and adaptive content delivery. For instance, students expressing dissatisfaction with generic materials may benefit from supplementary resources or interactive

content tailored to their preferences. ABSA thus supports a more learner-centric environment by aligning instruction with student voices.

Teacher Evaluation can also be significantly enhanced using ABSA. Traditional evaluation methods often rely on aggregated numeric scores that obscure the specific areas of performance. With ABSA, institutions can assess multiple facets of teaching effectiveness—such as enthusiasm, communication clarity, approachability, and feedback quality—allowing for a more nuanced and comprehensive evaluation of instructor contributions. This can be especially valuable in professional development and promotion decisions.

From a broader perspective, Curriculum Development can benefit from ABSA-derived insights by identifying which content areas consistently receive positive or negative sentiment. Course designers can use this information to prioritize content updates, refine learning outcomes, and ensure alignment with students' academic and career goals. This supports evidence-based curriculum reform and enhances overall program coherence.

Collectively, these applications not only improve the immediate learning experience but also foster a culture of institutional accountability and continuous pedagogical innovation. By systematically incorporating student voices into decision-making processes, educational institutions can better meet evolving learner needs while maintaining high standards of teaching and curriculum quality.

5. CHALLENGES AND LIMITATIONS

Despite the substantial potential of Aspect-Based Sentiment Analysis (ABSA) in educational settings, its practical implementation presents several notable challenges that must be carefully addressed to ensure its effectiveness and reliability.

One of the primary issues is Data Imbalance. Educational feedback datasets, especially those collected from MOOCs and large-scale online platforms, often demonstrate significant disparities in the distribution of aspect categories. For instance, students may frequently comment on "teaching style" or "course materials, " while rarely mentioning "technical support" or "assessment methods. " This imbalance can lead to biased models that perform well on frequently mentioned aspects but poorly on underrepresented ones, thereby limiting the comprehensiveness of the analysis. Addressing this issue requires balanced sampling strategies, data augmentation, or loss function adjustments that account for class distribution.

Another major obstacle is the use of Domain-Specific Language in educational contexts. Student feedback often includes formal expressions, technical jargon, academic terminology, and subtle sentiment cues. Unlike product reviews or social media posts where opinions are typically explicit and emotionally charged, educational comments may express dissatisfaction or praise in more neutral or indirect ways. For example, a phrase like "the content could have been structured more clearly" implies a negative sentiment but may not be easily recognized by general-purpose sentiment classifiers. This necessitates the development of domain-tuned models and fine-grained sentiment lexicons tailored specifically for educational discourse.

Multilingual and Cultural Diversity adds another layer of complexity, particularly in international learning environments such as MOOCs, which cater to learners from diverse linguistic and cultural backgrounds. Sentiment expression varies across languages and cultures—not only in vocabulary but also in tone, idiomatic usage, and evaluative norms. A phrase perceived as polite criticism in one language might be seen as harsh disapproval in another. Therefore, ABSA models must incorporate multilingual capabilities and cultural sensitivity to accurately interpret and classify sentiments in a globally diverse dataset.

The Dependence on Labeled Data remains a significant limitation. Most ABSA approaches, especially those based on supervised learning, require extensive manually annotated datasets for training. However, creating high-quality labeled datasets in the education domain is both time-consuming and costly, often requiring domain experts to interpret nuanced feedback accurately. This bottleneck hinders the scalability and adaptability of ABSA systems in different institutions or course settings.

Overcoming these challenges demands the exploration of advanced solutions such as transfer learning, where knowledge from resource-rich domains can be transferred to educational contexts; weak supervision, which leverages heuristic rules or distant supervision to generate approximate labels; and domain adaptation techniques, which enable models to generalize across varied educational settings without requiring extensive retraining. Continued research and collaboration across disciplines will be crucial in developing robust, scalable, and context-aware ABSA systems capable of addressing these multifaceted challenges.

6. FUTURE DIRECTIONS

To realize the full potential of ABSA in education, several research avenues warrant exploration:

 Cross-Lingual ABSA Models: Building multilingual models capable of analyzing sentiment across different languages will enhance the global applicability of ABSA tools.

 Real-Time Sentiment Monitoring: Integrating ABSA into learning management systems can enable continuous feedback collection and prompt pedagogical adjustments.

 Multimodal Analysis: Combining textual analysis with audio, video, and interaction data may offer a more comprehensive picture of learner sentiment and engagement.

 Few-Shot and Zero-Shot Learning: These approaches can reduce reliance on extensive labeled datasets, making ABSA more accessible for smaller institutions.

 Ethical Considerations: As ABSA becomes embedded in educational decision-making, ethical frameworks must be established to ensure transparency, fairness, and respect for learner privacy.

7. CONCLUSION

Aspect-Based Sentiment Analysis represents a transformative approach in the analysis of educational feedback. By moving beyond general sentiment classification to explore fine-grained opinions on specific aspects of the learning experience, ABSA provides actionable insights that benefit educators, students, and institutions alike. Advances in deep learning, coupled with growing datasets and computational resources, have positioned ABSA as an essential tool for data-driven education. Continued research and interdisciplinary collaboration will be vital in addressing current limitations and unlocking the full potential of sentiment analysis in shaping the future of education.

REFERENCES

[1] Awadh, W. A., Sulaiman, R., & Mahmoud, M. A. (2025). Aspect-based sentiment analysis in MOOCs: a systematic literature review introducing the MASC-MEF framework. Journal of King Saud University - Computer and Information Sciences.

[2] Edalati, M., Imran, A. S., Kastrati, Z., & Daudpota, S. M. (2024). the Potential of Machine Learning Algorithms for Sentiment Classification of Students' Feedback on MOOC.

[3] Cheng, X., & Xu, J. (2024). Research on Sentiment Analysis of International Chinese MOOC Reviews Based on the BERT Model.

[4] Pan, F., Zhang, H., Dong, J., & Shou, Z. (2023). Aspect Sentiment Analysis of Chinese Online Course Reviews Based on Efficient Transformer.

[5] Wang, B., Xiong, Y., Yao, Y., Chu, W., & Lü, Y. (2021). Aspect-Based Sentiment Analysis of Student Evaluations Using Deep Memory Networks.

The Value and Practical Path of Integrating Peer Psychological Counseling into Mental Health Education in Universities in the New Era

Qu Yi
Zibo Vocational Institute, Zibo 255000, Shandong, China

Abstract: In order to promote the physical and mental health development of students, the value of integrating peer psychological counseling into the new era of college mental health education is aimed at the whole school, combining campus culture, positive psychological qualities, problem-solving ability, emotional experience, and behavioral practice, and exerting the fundamental task of "cultivating virtue and talent" to promote the improvement and efficiency of students' mental health work. Starting from the practical difficulties of mental health education in universities and based on the embodied mindset, this paper proposes a practical path for peer psychological counseling and education, which includes "diversified content construction, situational education influence, and systematic team building". It actively explores the effectiveness and profundity of mental health education in universities.

Keywords: Peer psychological counseling; Psychological health education; Cultivating virtue and nurturing people; Embodied mind; Effectiveness

1. INTRODUCTION

In January 2025, the Central Committee of the Communist Party of China and the State Council issued the "Outline of the Plan for Building an Education Strong Country (2024-2035)", which mentioned the need to shape a new pattern of "cultivating virtue and nurturing talents", cultivate new generations who shoulder the great responsibility of national rejuvenation, expand the space and battlefield for practical education, promote the healthy growth and comprehensive development of students, and particularly emphasize the correct handling of the relationship between knowledge learning and comprehensive development. In May 2024, the Ministry of Education deployed the first National Student Mental Health Promotion and Education Month activity, which aims to cultivate the value shaping, thinking ability, and critical thinking of individuals through mental health education. This will help cultivate outstanding talents in the new era with comprehensive development in morality, intelligence, physical fitness, aesthetics, and labor skills. However, there are frequent psychological problems among students both domestically and internationally, and there are practical difficulties in college mental health education, such as emphasizing the transmission of knowledge content over real life experiences and practices, and insufficient linkage between psychological education teams without forming a joint force. We know that the "detached" learning that emphasizes knowledge transmission lacks the participation of sensory learning methods, while embodied learning focuses on physical participation in sensory learning methods such as "speaking, writing, doing, touching, and performing". Therefore, from the perspective of embodied theory, peer psychological counseling provides a specific entry point to solve the dilemma of educational practice. On the one hand, it is a touchstone to test the educational effectiveness of mental health education in universities from knowledge to skills. On the other hand, it serves as a powerful lever for grid management of psychological crisis intervention, linking and exerting the effect of psychological education circle, which is of great significance for

promoting the construction of harmonious and stable schools and improving the mental health level of college students.

The embodiment theory explains the learning methods of human cognition and representation of the world. This study integrates peer psychological counseling into the psychological health education of universities in the new era through embodied education and teaching practice, maximizing practical activities to achieve dynamic balance between mind, body, and environment. It focuses on the unity of knowledge, emotion, intention, and action in the learning process, and constructs a "heartwarming, practical, and highly effective" educational path for psychological health education in universities.

2 RESEARCH AND ANALYSIS ON THE EFFECTIVENESS OF MENTAL HEALTH EDUCATION IN UNIVERSITIES

2.1 Research On the Effectiveness Of Psychological Health Education Courses In Universities

This study adopts quantitative research methods and collects data through questionnaire surveys. the questionnaire is divided into three parts: the first part is the basic information of students' learning situation, including grade, gender, and major; the second part is the evaluation of students on mental health education courses. Based on the curriculum system designed and organized for mental health education in universities, a survey questionnaire is designed from four aspects: teaching content, teaching methods, teacher level, and teaching environment to evaluate the effectiveness of mental health education courses in universities. the third part is about the main factors that affect students' sense of achievement in learning about mental health education courses. By randomly selecting students from a vocational college to ensure the representativeness of the sample and the universality of the research conclusions, questionnaire data was collected and statistically analyzed. the results are as follows:

2.1.1 student basic information statistics

520 questionnaires were distributed through questionnaire filling, and 512 valid questionnaires were collected, with an effective rate of 98.5%. It covers students in grades one, two, and three of a certain vocational college. the gender distribution is relatively balanced, with 253 males accounting for 49%; 259 girls, accounting for 51% 179 first-year college students, accounting for 35%; 174 second year college students, accounting for 34%; There are 159 third year college students, accounting for 31% Students have diverse professional directions, covering multiple fields such as food and pharmaceuticals, intelligent products, light industry and textiles, resources and environment.

2.1.2 main factors affecting the sense of achievement in learning psychological health education courses

The reasons why students are not interested in mental health education courses are mentioned by various factors such as the teacher, teaching content, teaching methods, classroom size, and students themselves, as shown in Table 1. the most prominent issues are classroom size, teaching content, and teaching methods, and teachers are not the obvious reasons why students are not interested in the course. It is worth noting that students' preconceived attitude and perception of "psychological health education courses as not professional courses" have become the fourth major factor affecting college students' interest in psychological health education courses. [1]

2.2 Analysis Of the Challenges In Psychological Health Education In Higher Education Institutions

2.2.1 Poor Situational And Interactive Classroom Teaching

Cognition, memory, learning, emotions, and attitudes are all shaped by the body and environment. the essence of the mind is embodied, and learning is based on the body while also rooted in the environment. Firstly, the induction of psychological disorders is often related to emotional environment, emotional attitudes, and behavioral changes. Currently, classroom teaching focuses on the teaching objectives of cognition, with little emphasis on cultivating emotional attitudes and values, and neglecting the cultivation of practical skills and technical methods. Secondly, in the environment of large class teaching, the sense of immersion and

integration in the course is not strong, let alone how to handle and resolve conflicts. Once again, students who have learned about mental health knowledge in high school have higher expectations for their university studies, placing greater emphasis on skill application and addressing real-life difficulties. Therefore, course teaching should deeply study the characteristics of college students' learning situation under the new situation, explore the situational application of psychological knowledge, strengthen and consolidate the acquired knowledge through practical interaction, and avoid the passive and single "listening and learning" presented by learning detached from oneself.

2.2.2 Coarse Management Of "Grid Based" Psychological Crisis Intervention

Grid management is a dynamic monitoring, real-time warning, and professional and refined management mode. To address the challenges of students' psychological problems in the new situation, it is necessary to improve the construction of a "grid based" psychological crisis service platform and the effect of psychological education circles, achieve dynamic early warning of psychological crises among college students, and further enhance the effectiveness of mental health education. According to the spirit requirements of the "Notice of the General Office of the Ministry of Education on Strengthening the Management of Students' Mental Health" and the "Opinions on Accelerating the Construction of the Ideological and Political Work System in Colleges and Universities" [3-4], colleges and universities shall allocate full-time mental health teachers with a teacher-student ratio of not less than 1:4000, give full play to the role of mental health education teachers, counselors, class teachers and other educational subjects, and strengthen professional support for scientific management. In response to the psychological imbalance problems encountered by students in learning, life, self-awareness, and interpersonal relationships, in addition to building a professional teacher team, a dense "grid" team is woven through peer psychological counseling to strengthen the psychological education circle effect of "mental health education teachers, counselors, class teachers, and student peer psychological counselors". [2] On the one hand, it is conducive to collecting psychological crisis information, achieving timely and accurate assessment of students' psychological dynamics, timely warning of psychological crises, and providing necessary psychological counseling and intervention in a timely manner, becoming a powerful grasp for the precise, dynamic, and normalized management of "grid based" psychological crisis intervention; On the other hand, it can greatly solve the problems of insufficient professional team, psychological problems being obscured, and delayed psychological crisis intervention. Early intervention, scientific assistance, emotional counseling, and problem solving can be provided to students with psychological distress, forming a bottom-up and efficient "grid" psychological crisis intervention management mechanism.

3 THE PRACTICAL PATH OF INTEGRATING PEER PSYCHOLOGICAL COUNSELING INTO MENTAL HEALTH EDUCATION

3.1 Diversified Content Construction, Building Interactive Platforms

By conducting a questionnaire survey to sort out the psychology of different student groups such as gender, ethnicity, grade, major, admission method, and family economic status, analyze and depict the "self portrait" of students' psychological indicators, and use thematic learning as a medium to build a platform for communication and dialogue between teachers and students, and enhance problem-solving abilities. For example, ethnic minority students have psychological adaptations such as national identity, interpersonal communication, lifestyle customs, and dietary habits in mainstream culture. Focusing on prominent psychological issues and needs, the "Mental Health Lecture Hall" activity is held to help ethnic minority students resolve conflicts and contradictions in psychological adaptation and values, and to strengthen the value orientation of "nurturing heart" and "nurturing morality" in college mental health education; In addition, peer psychological counseling activities such as "Encountering the Unknown Myself" and "It's Good to Know You" will be carried out to

create an interactive research learning and experiential teaching environment of "perception, experience, sharing, and action". Firstly, create a context to stimulate interest; Secondly, participate, feel and experience in groups, and learn how to solve problems; Again, while students share and communicate, teachers integrate theories for analysis, supplementation, and sublimation; Finally, assign homework after class to strengthen practice and action Through peer psychological counseling activities, students from different ethnic groups can actively engage in mutual trust, mutual assistance, and reciprocity, alleviate anxiety, and generate empathy to enhance inter group relationships. the generalization of positive contact effects and the expansion of contact methods are conducive to consolidating interpersonal communication effectiveness and promoting ethnic unity and progress. [3]

3.2 Situational Education Influences And Achieves Mental Unity

Implement the educational goal of "knowledge, emotion, intention, and action", and construct an embodied learning practice model that integrates "cognition, body, and environment". the Peer Psychological Counseling Competition examines the participants' understanding and mastery of theoretical knowledge, crisis intervention techniques, and coping strategies for common psychological problems in peer psychological counseling through "competition promotes learning" and "learning enhances intelligence", enriching students' theoretical and practical experience, as shown in Table 2. the scoring dimensions for the heart to heart talk session include four aspects: focusing on the topic and applying skills, language expression and logical analysis, emotional counseling and conflict resolution, on-site atmosphere, and contestant attire, as shown in Table 3. Each contestant applies the knowledge and skills of peer counseling to analyze and solve specific cases of peer counseling. Through role-playing and simulating problem-solving scenarios, learners are encouraged to generate more perceptions and experiences.

3.3 Systematic Team Building, Cultivating Psychological Backbone

Peer guidance for students refers to using outstanding students with outstanding problem-solving abilities, ideological values, positive psychological qualities, emotional and behavioral abilities as role models, responding to and intervening in problems encountered by peers, and leveraging the advantages of the "seeking knowledge+educating people+serving" peer psychological counseling backbone team cultivation mechanism.

REFERENCES

[1] Connell L, Lynott D, Banks B. Interoce ption: the forgottenmodality in pereeptual grounding of ahstraet and conereteconcepts [J]. Philosophical transactions of the Royal Societyof London. Series B, Biological sciences. 2018, 373(1752):20170143.

[2] Ye Haosheng Embodied Mind and Embodied Education [J]. Educational Research, 2023, 44(03):32-41.

[3] Ye Haosheng the Educational Value of the Body: A Phenomenological Perspective [J]. Educational Research, 2019, 40(10):41-51.

A Review of the Research Progress and Clinical Application of Hemoglobin Measurement Technology

Yalin Song
Zibo Vocational Institute, Shandong, China

Abstract: Hemoglobin measurement, as a core item in clinical testing, plays a crucial role in anemia diagnosis, disease monitoring, and transfusion decision-making. This article systematically reviews the clinical significance of hemoglobin measurement, analyzes the limitations of current methods in China, focuses on introducing the principles and advantages of international cutting-edge technologies such as capillary electrophoresis, liquid chromatography, immunoturbidimetry, and near-infrared spectroscopy, and looks forward to the application prospects of new technologies in precision medicine and health management. the research points out that the new measurement technology, with high sensitivity, automation, and non invasiveness as its core features, will promote the development of hemoglobin detection towards intelligence and real-time direction.

Keywords: Hemoglobin measurement; Anemia diagnosis; Cyanide high-speed iron method; Near infrared spectroscopy; Capillary electrophoresis;

1. THE IMPORTANT CLINICAL SIGNIFICANCE OF HEMOGLOBIN MEASUREMENT

Hemoglobin is an iron containing complex protein in red blood cells. Its main function is to transport oxygen and carbon dioxide in the body. It combines with oxygen to form oxyhemoglobin, which transports oxygen from the lungs to various tissues and organs of the body, and transports carbon dioxide produced by tissue metabolism back to the lungs for excretion. the normal content of hemoglobin is essential to maintain the normal oxygen supply and metabolic waste discharge of the human body. Abnormal concentration of Hb is closely related to various diseases.

1.1 Anemia Diagnosis and Pathological Classification

Abnormal hemoglobin content, whether too high or too low, may be closely related to a variety of diseases. When the hemoglobin concentration is lower than the normal range, the body's oxygen supply is insufficient, which can lead to fatigue, palpitations, dizziness and other symptoms, and even increase the heart burden and heart failure in severe cases. According to WHO standards, anemia can be diagnosed when Hb levels in adult males are less than 130 g/L and in females are less than 120 g/L. By combining red blood cell parameters (MCV, MCH), subtypes such as iron deficiency anemia (MCV ↓), thalassemia (MCV ↓+HbA2 ↑), and megaloblastic anemia (MCV ↑) can be distinguished.

1.2 Prognostic evaluation of chronic diseases

Chronic kidney disease (CKD) patients often have renal anemia due to insufficient erythropoietin (EPO), and Hb levels are negatively correlated with glomerular filtration rate (eGFR) (r=-0.72). During the period of radiotherapy and chemotherapy in cancer patients, the decrease in Hb is significantly associated with tumor hypoxia and reduced treatment tolerance. Patients with Hb<100 g/L have a 30% lower survival rate.

1.3 Perioperative risk prediction:

Preoperative Hb<100 g/L significantly increases the risk of cardiovascular surgical complications (OR=2.4), while transfusion threshold setting (Hb<70 g/L vs. 80 g/L) directly affects patient prognosis. In the field of obstetrics, Hb dynamic monitoring can warn of anemia during pregnancy and postpartum hemorrhage.

2. CURRENT HEMOGLOBIN MEASUREMENT METHODS AND

LIMITATIONS IN CHINA

China's clinical practice mainly relies on the high iron cyanide method (HiCN method) and sodium dodecyl sulfate colorimetric method (SDS method), although the operation is mature, but there are significant limitations. the following analyzes its shortcomings from the aspects of technical principle, operation process and clinical application.

2.1 Cyanide methemoglobin method (HiCN method)

As a reference method recommended by the International Committee for Standardization in Hematology (ICSH), it has excellent performance in accuracy (deviation <3%) and precision (cv<2%), but the application limitations cannot be ignored. First of all, it uses highly toxic potassium cyanide (KCN) as a reagent, with a lethal dose of only 50-100 mg. It needs to be equipped with a fume hood, waste liquid recovery system and professional operation, which is difficult for primary medical institutions to meet the requirements. Improper treatment of cyanide containing waste liquid can cause environmental pollution, and face the compliance pressure of the medical waste management regulations, resulting in increased detection costs (single waste liquid treatment cost is about 5-10 yuan). Secondly, the operation is complicated, and the blood needs to be accurately diluted (1:251), and manual operation is prone to result in deviation due to dilution multiple error (± 5%); Hemolysis time (5-10 minutes) and temperature (25-37 ℃) are strictly controlled, and HBS, HBC and other variants cannot be transformed, resulting in low measured values in patients with hereditary hemoglobinopathies (mean error -12%). In addition, the 15-20 minute detection cycle is difficult to meet the needs of emergency treatment, and is only applicable to fresh whole blood. Anticoagulants (EDTA, heparin) have interference (heparin can increase HB value by 3% - 5%).

2.2 Sodium dodecyl sulfate colorimetric method (SDS method)

Due to its low cost (reagent cost <1 yuan/time), it is widely used at the grass-roots level, but the technical defects are increasingly prominent. the efficiency of red blood cell lysis is affected by temperature, incubation time and sample viscosity. Incomplete hemolysis of lipid blood and hypergammaglobulinemia samples leads to low results (up to -15%); Jaundice (bilirubin >20 mg/dl) or chylous blood samples produced an absorption peak at the wavelength of 575 nm, which overlapped with the absorbance of Hb, resulting in false positives (mean deviation +8%). Instrument calibration relies on HiCN standard solution, but the lack of quality control often leads to systematic errors in grass-roots laboratories. In addition, the manual operation is highly dependent, and human error (cv>5%) is easily introduced in the processes of sample adding and hemolytic agent adding, which leads to poor adaptability of automation, and the accuracy is affected by the cross contamination of reagent channels of domestic analyzers. In terms of clinical applicability, it is impossible to distinguish between HbF and HbA when the content of HbF in newborns is high, resulting in the misdiagnosis rate of anemia in premature infants as high as 20%; the 10 minute manual operation in the emergency scene takes too long to meet the needs of dynamic monitoring. Other traditional methods, such as the sarylated hemoglobin method (sahli method) and the alkaline hydroxyhemoglobin method (ahd 575 method), are still applied at the grass-roots level, but their limitations are more significant. Sahli method relies on visual colorimetry, and the difference in operator experience leads to a deviation of ± 10%. Acidification reagent is volatile and needs to be freshly prepared every day. Ahd 575 method is affected by the concentration of reducing agent, and the measured values of blood fat and high leukocyte samples are higher (+5%-10%).

Summary of limitations: China's current methods have systematic defects in safety (highly toxic reagents), accuracy (optical interference, operation dependence), clinical adaptability (emergency, newborn screening, diagnosis of hemoglobinopathy) and grass-roots quality control. It is urgent to introduce new technologies to optimize the existing methods.

3. INTERNATIONAL CUTTING-EDGE HEMOGLOBIN MEASUREMENT TECHNOLOGY

3.1 Near Infrared Spectroscopy (NIRS)

Near infrared spectroscopy (NIRS) is a non-invasive technique for the determination of hemoglobin, which has received extensive attention in the world in recent years. the principle is to use the absorption characteristics of hemoglobin to near-infrared light, and calculate the concentration of hemoglobin by measuring the light intensity changes of different wavelengths of near-infrared light after passing through human tissues. There are two main forms of measurement:

Portable near infrared spectrometer: it is suitable for family and personal health management by placing the probe on fingers, ear lobes and other parts for measurement.

Fixed near infrared spectrometer: usually used in medical institutions to measure patients more accurately. the advantages of near-infrared spectroscopy are its non-invasive, no blood sampling, simple and fast operation, and continuous monitoring. However, the accuracy of this technology is easily affected by skin pigment, vascular status, measurement site and other factors. At present, the popularity of this technology in clinical application still needs to be improved.

3.2 Capillary electrophoresis (CE)

Separates Hb subtypes based on protein charge and molecular sieve effect under high voltage electric field, which can accurately distinguish HbA, HbA2, HbF and variants. Its advantages include: a resolution of 0.1%, suitable for early diagnosis of sickle cell anemia (HbS); Analysis time<10 minutes, suitable for large-scale screening; No need for highly toxic reagents, environmentally friendly.

3.3 High performance liquid chromatography (HPLC)

Separates Hb and its derivatives by reverse phase or ion exchange chromatography, and quantifies them with a UV detector. the clinical value is reflected in: quantitative analysis of glycated hemoglobin (HbA1c), coefficient of variation (CV)<1%; Identifying unstable hemoglobin (HbM, HbH) to assist in the diagnosis of hereditary hematological diseases; Compatible with whole blood and plasma samples, with strong compatibility.

3.4 Immunoturbidimetry method

Uses anti Hb antibodies to form immune complexes with Hb in the sample, and the concentration is determined by scattered light intensity. Technical features: High degree of automation, suitable for clinical laboratory assembly line operation; the detection limit is as low as 0.5 g/L, suitable for newborn screening; Strong anti-interference ability and good tolerance to lipid blood samples.

4. SUMMARY AND PROSPECT

4.1 Summary of research results

Hemoglobin determination has important clinical significance in the field of medicine. the traditional cyaniding methemoglobin method and HemoCue method have their own advantages and limitations in clinical application. With the continuous progress of science and technology, emerging technologies such as near-infrared spectroscopy have shown new possibilities in hemoglobin determination. These new technologies have advantages in improving the convenience of detection and real-time monitoring ability, but they also need to overcome the problems that the accuracy is affected by many factors.

4.2 Outlook and suggestions

In the future, the development direction of hemoglobin determination technology will mainly focus on improving the accuracy, convenience and real-time of detection. On the one hand, we need to strengthen the R & D and optimization of emerging technologies to improve their reliability and popularity in clinical applications. On the other hand, we can explore the combination of a variety of technologies, such as near-infrared spectroscopy and microfluidic chip technology, to develop more efficient and accurate hemoglobin determination equipment. At the same time, we should also pay attention to the promotion of simple and rapid hemoglobin determination methods in primary medical institutions and areas with limited resources, so as to improve the ability of early detection and diagnosis of diseases.

REFERENCES

[1] World Health Organization. Hemoglobin concentrations for the diagnosis of anemia and assessment of severity [J]. Vitamin and Mineral Nutrition Information System, 2011.

[2] Sadasivam S, Manickam S. Estimation of hemoglobin: comparison of

cyanmethemoglobin method with Sahlis acid hematin method [J]. the Indian journal of medical research, 1983, 77(1):25-31.
[3] Zhang L, et al. Capillary electrophoresis for hemoglobinopathy screening in China [J]. Clinica Chimica Acta, 2020, 511:98-104.
[4] American Diabetes Association. Standards of medical care in diabetes-2022[J]. Diabetes Care, 2022, 45(Supplement 1): S1-S264.
[5] Kost GJ. Point-of-care testing: a global perspective [J]. Clinica Chimica Acta, 2002, 324(1-2):1-13.
[6] National Health Industry Standards of the People's Republic of China WS/T 244-2015 Reference Method for Hemoglobin Determination Cyanide High Iron Hemoglobin Method [S]. Beijing: China Standard Press, 2015
[7] Li X, et al. Non-invasive hemoglobin measurement using near-infrared spectroscopy: a systematic review [J]. Biomedical Optics Express, 2018, 9(2):667-685.

Research on the Influencing Factors of Communication Ability Among Vocational Nursing Students

Bo Wang
Zibo Vocational Institute, Zibo, Shandong, 255300, China

Abstract: The current nursing education should be dedicated to helping nursing students achieve comprehensive personal development, which is reflected in the integration and harmonious progress of "knowledge", "ability", and "quality". However, the complex and ever-changing international situation and rapid socio-economic development have inevitably influenced vocational nursing students with various worldviews and values during their growth process, leading to a utilitarian tendency in learning and career choices. Many students neglect the study of humanistic knowledge and the cultivation of humanistic spirit, resulting in weak professional emotions and a lack of communication. At the same time, current nursing education still focuses more on the cultivation of professional knowledge and skills, especially in vocational nursing majors that have long focused on student skill development. It neglects the cultivation of nursing communication skills, which is an important part of students' professional abilities. As a result, students sometimes cannot effectively communicate with patients after entering the workforce, and the trained nursing students are difficult to meet the requirements of high-quality nursing services.
Keywords: Communication ability; Vocational nursing students

1. THE CONCEPT OF COMMUNICATION ABILITY

Communication ability refers to a technique commonly used in interpersonal communication and interaction, which includes the intake and output of information, as well as the intermediate link between the two - empathy [1]. According to the consciousness of communication, it can be divided into intentional communication and unintentional communication. In most cases, communication has a certain purpose, and this type of communication is intentional communication. But sometimes we are actually exchanging information with others without realizing it, and this kind of communication is unintentional communication. According to the purpose of communication, it can be divided into social communication and therapeutic communication. the purpose of social communication is to establish friendship or meet the needs of both parties. the theme of communication depends on the needs or preferences of both parties. the purpose of therapeutic communication is to provide physical and mental support to patients and solve problems. the theme of communication is patient-centered. Therapists must accept patients and constantly reflect, improve, and evaluate communication effectiveness to achieve treatment goals [2]. Different scholars have different understandings of the concept of nurse patient communication, and currently the most common concepts are nurse patient communication and therapeutic communication.

2. THE IMPORTANCE OF COMMUNICATION SKILLS FOR NURSING STUDENTS

2.1 Improve the trust between nurses and patients and reduce conflicts between them

Every step of nursing work cannot be separated from communication, and nurses' good communication skills can have a positive impact on patients' emotions and perspectives [3]. Research has shown that nurses' clinical communication skills are closely related to nurse patient trust. Among various aspects of nurses' clinical communication skills, language communication skills have the

strongest impact on nurse patient trust. Language communication is the most direct, rapid, and rich way of communication. Comfort and empathy, guidance and advice, explanation and clarification in nurse patient communication all rely on language communication. the stronger a nurse's language communication skills and ability to communicate in difficult situations, the better the patient's sense of peace of mind and confidence in the future [4]. Improving nurses' clinical communication skills is an important way to enhance nurse patient trust, which is of great significance in the healthcare system. For patients, it can enhance their sense of security, reduce the pressure during medical visits, facilitate nurses to provide continuous care, promote rehabilitation [5-6], and alleviate patients' medical economic burden.

Vocational nursing students who lack good communication skills are prone to causing doctor-patient conflicts and even serious medical disputes in the heavy clinical nursing work, especially when facing elderly patients with low cultural levels, poor understanding abilities, communication difficulties, and introverted personalities. Newly entered clinical nursing students lack initiative in communication, neglect to perceive the health needs of the elderly, and fail to establish a good cooperative relationship with them. Another study shows that vocational nursing students have insufficient humanistic care performance in clinical internships, reflected in their lack of ability to apply nursing theory knowledge to solve practical problems, shallow mastery of humanistic knowledge, and insufficient humanistic qualities, resulting in insufficient communication skills with patients and limited care for patients [7]. the importance of communication has deeply penetrated people's hearts. Good and effective communication between nurses and patients, especially language communication and communication in difficult situations, can increase their trust, especially in improving patients' sense of peace of mind and confidence in the future.

2.2 Stable Nurse Team

The nurse patient conflict caused by poor communication has affected the willingness of nursing students to engage in elderly care in the future, which will have a very adverse impact on the overall stability and growth of the nursing team [8]. Research [9] shows that improving communication skills can not only enhance nurses' professional identity, but also promote patients' participation in clinical nursing research and promote the development of nursing research in the nursing industry. the shortage of elderly care talent in China is prominent, and part of the reason for talent loss is the generation gap in communication with the elderly [10]. Communication is a prerequisite for ensuring the nursing process and quality. If vocational nursing students find it very difficult to communicate with patients or elderly patients during their learning process, they may have difficulty understanding the true needs of the elderly and therefore cannot guarantee that the nursing services provided will meet their needs. These negative outcomes may bring negative experiences to nursing students, thereby affecting their willingness to work and hindering the growth and stability of the nursing workforce.

2.3 Provide better care for the elderly

Communication between medical staff and patients is one of the most basic and important aspects of work. Good communication is conducive to the smooth implementation of medical work and also provides patients with a more comfortable treatment atmosphere. In Maslow's hierarchy of needs theory, respect is a higher-level need that includes both personal feelings of achievement or self-worth, as well as recognition and respect from others. In the eyes of patients, "nurses are too busy" or "they hardly communicate" are both signs of lack of respect [4]. Elderly nurses not only serve as healers and caregivers, but also assume the roles of educators, counselors, and innovators [11]. the current society requires nurses not only to have solid theoretical knowledge, experience, and proficient operational skills, but also to have the ability to communicate with patients; Good communication skills between nurses and patients can ensure the transmission and awareness of their physical information by patients and their families, thereby facilitating better cooperation in treatment. Research [12] has shown that difficult situations in the communication process of nurses include special patients (such as terminally ill or cancer patients,

elderly dementia patients, infectious disease patients, patients with cultural differences, etc.) and patient special states (negative emotions, lack of cooperation, questioning, etc.). In these difficult situations, nurses' communication ability scores are relatively low, indicating that when facing some elderly patients with special situations, this communication ability needs to be specially trained or experienced to be mastered.

3. CONCLUSION

Cultivating nursing students with communication skills can help them better communicate with patients after graduation, reduce disputes and conflicts between nurses and patients, create a better clinical work environment, integrate into clinical work, and avoid resistance among nursing students.

REFERENCES

[1] Wan Hengjing, Min Weihong. Qualitative study on the implementation of humanistic care nursing by psychiatric nurses [J]. Nursing in Shanghai, 2013(4):26-29.

[2] Li He, Shi Tieying, Lu Jing. Qualitative study on the humanistic care ability and influencing factors of undergraduate nursing interns [J]. Medicine and Philosophy, 2014, 035(22):89-91.

[3] Wang Sixue, Fang Xueling, Qin Siqi, etc. Development and reliability and validity testing of a self-assessment scale for communication skills between nursing students and the elderly [J]. Nursing research, 2024, 38(16):2821-2826.

[4] Lu Dongmei. Research on Enhancing the Humanistic Care Ability of Nursing Students in Higher Vocational Colleges in Nanning City [D]. Guangxi Normal University, 2020.

[5] Watson J. the Theory of Human Caring: Retrospective and Prospective [J]. Nursing Science Quarterly: Theory, Research, and Practice, 1997, 10(l):49-52.

[6] Chen Yu. A survey and intervention study on the humanistic care ability of nursing college students [D]. Guangzhou: Southern Medical University, 2017.

[7] Zhang Hemin, Wu Hao, Ying Liang. Research on the Current Status and Cultivation Methods of Communication Skills between Nursing Students and Patients in Clinical Internship: A Case Study of Nursing Major at Wenzhou Medical University [J]. Science and Education Guide, 2024, (07):144-147.

[8] Yang Yujie, Li Huiping, Fang Qin. Investigation and analysis of the willingness and influencing factors of five-year vocational nursing students to engage in elderly care [J]. Journal of Nursing, 2015, 30(14):75-77.

[9] Wang Xiaohui. Analysis of the Current Status and Potential Profile of Clinical Nurses' Communication Skills [D]. Xinxiang: Xinxiang Medical College, 2022.

[10] Li L, Hua R, Yang L. Coping styles play intermediary roles between resilience and clinical communication ability among Nursing students in traditional Chinese Medical university:A structural equation model analysis [J]. Medicine (Baltimore), 2021, 100(51)
:e28284.

[11] Secrest JA, Keatley VM, Norwood BR. Integrating the AACN"essentials baccalaureate education for professional nursing practice":a teaching project [J].
Nurse Educ, 1999, 24(6):37, 44.

[12] Su Airu, Li Nan, Li Yan. Study on the correlation between nurses' clinical communication ability and nurse patient trust [J]. Journal of Hebei Medical University, 2024, 45(10):1226-1231.

Compare and Contrast Rational and Emotional Approaches to Understanding and Managing Behaviour

Jiaying Wang
Zibo Vocational Institute, Zibo City, Shandong Province, China

Abstract: The analysis in this essay is related to the topic of comparing and contrasting rational and emotional approaches towards understanding and managing the behaviour of individuals within an organization. the arguments and the discussion in the essay will be presented based on the information derived through various secondary sources in the light of which relevant themes will be developed and analyzed. the discussion will revolve around understanding and managing the behaviour of individuals within a corporation and its relevant significance along with highlighting the strengths and limitations of these approaches.
Keywords: Rational approaches; Emotional approaches; Behaviour

1. SIMILARITIES AND DIFFERENCES

1.1 Rational approaches in understanding the behaviour

Rational approaches in understanding the behaviour of the individuals refer to the level of understanding which suggests that individuals make decisions for obtaining optimal level of benefit. the other key assumption associated with rational approach towards understanding and managing behaviour is that individuals take those actions that provide them benefits contrary to the actions that can cause them a significant degree of harm (Djulbegovic, Elqayam and Dale, 2018)[4]. Furthermore, it is stated by Gayed and Alber (2017)[5], the thing about rational behaviour of an individual with specific context to an organization is that the employees acting rationally may not be involved in an event which would receive the huge number of monetary or material benefits. Because these kinds of individuals generally like to play safe, which means that majority of the times they would not be willing to take too many risks. Thus, the decision makers in a particular workplace environment can assume that individuals behave and prefer in a consistent manner unless there is an unforeseen situation and circumstances.

1.2 Emotional approaches in understanding the behaviour

Contrary to the rational approach of managing behaviour, the emotional approach in terms of management of behaviour is primarily related to the behaviour that promotes moral and social values. As opposed to rational approach, the emotional approach related to the individual is primarily related to instinctive behaviour which is generally not the result of a conscious effort and approach of a particular individual (Xie, Bagozzi and Grønhaug, 2019)[13]. Similarly, it is stated by Saroglou, Clobert and Cohen et al. (2020)[12] that the management of a firm while taking into consideration the emotional aspects of behaviour management should take into consideration the fact that different individuals possess different kinds of emotions due to which there is a significant degree of change within the ways in which they behave. Therefore, taking into consideration the emotional aspect of an individual behaviour can be considered as largely dynamic and uncertain resulting in changing patterns and trends within the ways through which individuals behave not only within the workplace but also in their life generally.

1.3 Relevance

Nevertheless, it is argued by Goldsmith (2017)[6], that emotions are actually closely associated with rationality. This is because they are considered as an important element of the mechanism of reasoning and therefore have the capability to guide most logical decisions of the individuals as well. On the

other hand, it is stated by Henriksson (2017)[8], those emotions can operate as the enablers in terms of understanding causes of rational decision making as they are directly related to understanding different objects of thoughts that can determine the behaviour of the individuals. Therefore, in the case of decision makers within organizations taking various decisions, it is important that they create an alignment between emotions and the element of rationality to take right kind of decisions. the arguments presented by Djulbegovic and Elqayam (2017)[3], suggest that emotions can be rational or irrational depending upon whether the object of emotion is linked with a particular reaction or not. There is a very fine line that exists between both rational and emotional approaches of individual behaviour. Considering this, it is important that both these approaches are taken into view while determining the behaviour of a particular individual in a given situation. According to King and Lawley (2019)[9], as far as the application of different approaches in terms of understanding individual behaviour, it is imperative for the management to identify the individual characteristics of different employees and develop policies to deal with in an appropriate manner. Now in this case the individual may act emotionally or rationally depending upon their individual characters and their pattern of behaviour which they have maintained over a period of time.

2. STRENGTHS AND LIMITATIONS

2.1 Rational Approach

The strength of rational approach in the context of establishing individual understanding is that it is easy to apply and study the behaviour of a person mainly because an average person is expected to act rationally in normal situations and circumstances. Therefore, the application of the rational approach provides a clear picture of the individual character and pattern of behaviour on a consistent basis (Knox and Parkinson, 2020)[10]. Otherwise a major strength that has been identified with regards to rational decision making is that it is easy to predict because it is based on scientific data, facts and figures. It is fair to suggest that the application of rational approach in organizations can assist managers in understanding the pattern of behaviour of a particular employee over a period of time. Consequently, rational approach in decision making improves the overall quality of decision-making process regarding a specific individual. the consistency that is provided through rational decision-making approach is that it highlights the ways through which an individual should act in a given situation as opposed to how he should not act or behave. Therefore, considering the rational approach of behaviour, the management can provide the required guidance to the employees about the kind of behaviour that they are needed to display in a particular scenario.

In contrast to the strengths, rationality does not take into consideration the influence of uncertain and unforeseen circumstances which can influence the rationality of the entire decision-making process (Calabretta, Gemser and Wijnberg, 2017)[1]. On the other hand, the application of rational approach in managing behaviour of a person is risky because it assumes that an individual always has the required knowledge and understanding while behaving in a particular manner although it is not the case every time. the rationality of the decision making of an individual can be affected by different factors such as cognitive ability, time constraints along with lack of information (Lindig-León, Gottwald and Braun, 2019)[11].

2.2 Emotional Approach

One of the positive aspects of emotional approach in terms of understanding human behaviour is that it assists in understanding the way in which an individual will react in tough situations and circumstances where an average person can easily get emotional. In other words, emotional approach is basically a reflection of the strength of the character of an individual (Chatterjee, Gupta and Chinnakotla, et al., 2019)[2]. the other major strength of emotional decision making is that it highlights the speed and the efficiency with which a person in an organization can take decisions. Therefore, those individuals who use their emotions appropriately for taking decisions are offered higher positions in the organization as opposed to those who are not able to do so (Hassan, Alam and Uddin, et al., 2019)[7].

However, one of the major arguments that exist against the emotional process of understanding behaviour is that majority of the times individuals are expected to behave in a rational manner which a variety of undermining the importance of emotional aspects especially in terms of taking various decisions. On the other hand, the argument that can be presented against the emotional aspect of a person's behaviour is that different individuals possess different kinds of behaviour due to which it can become difficult for the relevant concerns about predicting the behaviour of a person solely based on the emotional characteristics.

3. CONCLUSION

The overall analysis that has been conducted in the essay further confirms that both rational, as well as emotional approaches, are important in terms of appropriately understanding and managing the behaviour of the individuals professionally as well as in their personal lives. This is because an individual can be rational as well as emotional simultaneously depending upon his overall nature and attributes. Therefore, some of the key similarities that were identified within rational and emotional decision making are that emotions most of the times does form through different rationales about various issues. Consequently, it is difficult to separate these two approaches to understanding the behaviour of an individual.

However, there are some major disparities between these two approaches that cannot be ignored. For example, rational approach is primarily related to individuals behaving in a systematic and consistent behaviour; whereas, emotional approach assumes that the behaviour can change dramatically from time to time. the other key factor that differentiates between emotional and rational approaches is the type of decisions that are made. Rationality assumes that the decisions are taking consciously keeping into consideration facts and figures. In contrast, emotional decision making is basically related to the instincts of the individuals taking over the kind of decisions that are being taken. the significance of taking into consideration these differences is important especially for the managers of an organization as it can affect their understanding about the ways through which a particular employee would act in a specific situation.

REFERENCES

[1] Calabretta, G., Gemser, G., and Wijnberg, N. M. (2017). the interplay between intuition and rationality in strategic decision making: A paradox perspective. *Organization Studies*, *38*(3-4), 365-401.

[2] Chatterjee, A., Gupta, U., Chinnakotla, M. K., Srikanth, R., Galley, M., and Agrawal, P. (2019). Understanding emotions in text using deep learning and big data. *Computers in Human Behavior*, *93*, 309-317.

[3] Djulbegovic, B., and Elqayam, S. (2017). Many faces of rationality: implications of the great rationality debate for clinical decision-making. *Journal of Evaluation in Clinical Practice*, *23*(5), 915-922.

[4] Djulbegovic, B., Elqayam, S., and Dale, W. (2018). Rational decision making in medicine: implications for overuse and underuse. *Journal of evaluation in clinical practice*, *24*(3), 655-665.

[5] Gayed, N., & Alber, N. (2017). Towards a New Economic Philosophy (The Value Added of Giving More than Receiving). *SSRN Electronic Journal.* doi: 10.2139/ssrn. 2950863

[6] Goldsmith, R. E. (2017). Rational choice and bounded rationality. In *Consumer Perception of Product Risks and Benefits* (pp. 233-252).

[7] Hassan, M. M., Alam, M. G. R., Uddin, M. Z., Huda, S., Almogren, A., and Fortino, G. (2019). Human emotion recognition using deep belief network architecture. *Information Fusion*, *51*, 10-18.

[8] Henriksson, A. (2017). Norm-critical rationality: emotions and the institutional influence of queer resistance. *Journal of Political Power*, *10*(2), 149-165.

[9] King, D and Lawley, S. (2019) *Organizational Behaviour, 3e, Oxford*: Oxford University Press.

[10] Knox, K., and Parkinson, J. (2020). 10 Plural rationality approach to stakeholder engagement. *Stakeholder Involvement in Social Marketing: Challenges and Approaches to Engagement*, 150.

[11] Lindig-León, C., Gottwald, S., & Braun, D. (2019). Analyzing Abstraction and

Hierarchical Decision-Making in Absolute Identification by Information-Theoretic Bounded Rationality. *Frontiers In Neuroscience, 13.* doi: 10.3389/fnins. 2019.01230

[12] Saroglou, V., Clobert, M., Cohen, A. B., Johnson, K. A., Ladd, K. L., Van Pachterbeke, M. and Hwang, K. K. (2020). Believing, bonding, behaving, and belonging: the cognitive, emotional, moral, and social dimensions of religiousness across cultures. *Journal of Cross-Cultural Psychology*, *51*(7-8), 551-575.

[13] Xie, C., Bagozzi, R. P., and Grønhaug, K. (2019). the impact of corporate social responsibility on consumer brand advocacy: the role of moral emotions, attitudes, and individual differences. *Journal of Business Research*, *95*, 514-530.

Research on the Current Status and Development Trends of Professional Clusters Serving Industrial Development

Leilei Wang
Zibo Vocational Institute, Shandong, China

Abstract: This study examines the current status and future trends of the construction industry based on data from the National Bureau of Statistics and the Ministry of Housing and Urban-Rural Development. Findings indicate that the industry remains a national pillar, contributing 6.67% to GDP in 2024, yet traditional housing construction is shrinking due to market adjustments. International markets show resilience, with a 3.14% growth in overseas contracting revenue (2023), while 81 Chinese firms rank among the top 250 global contractors. Policy-driven digital transformation (e. g., BIM, AI) is expanding from design to construction and operation, but a 1:5 talent gap (e. g., civil engineering with AI skills) hinders progress. Future trends highlight intelligent construction for "quality enhancement and cost reduction, " with enterprises leading R&D, and talent demands shifting: from "craft-based" to "interdisciplinary, " "experience-driven" to "data-centric, " and "specialized" to "collaborative. " the study offers empirical insights for industry transformation and talent development.

Keywords: Construction industry; Digital transformation; Intelligent construction; Talent demand; BIM technology

1. CURRENT DEVELOPMENT STATUS OF THE CONSTRUCTION INDUSTRY

1.1 The construction industry remains a pillar industry of the country

According to data from the National Bureau of Statistics, the proportion of added value in the construction industry to GDP has remained stable at over 6.6% for ten consecutive years, reaching 6.67% in 2024[1]. In 2024, the industry growth rate (3.8%) is 1.2 percentage points lower than the overall GDP growth rate (5.0%), indicating that the growth momentum of the construction industry is weaker than the macroeconomic fundamentals. It is worth noting that the construction area of houses decreased by 10.62% year-on-year, and the proportion of completed residential areas fell below 60% (59.3%) for the first time, indicating that the deep adjustment of the real estate market is accelerating the shrinkage of the traditional housing construction field [2].

1.2 Market differentiation at home and abroad, with significant expansion in the international market

The newly signed contract amount in the domestic construction market decreased by 5.29% year-on-year, but the revenue of foreign contracted projects increased by 3.14% year-on-year to 165.97 billion US dollars (160.9 billion US dollars in the same period of 2023), highlighting the resilience of international business [3]. the steady expansion of the international market has driven 81 Chinese companies to enter the top 250 global contractors, among which 4 companies including China Communications Construction and China State Construction have entered the top ten globally, demonstrating the continuous enhancement of the competitiveness of "China Construction" in the global market.

1.3 Driven by policies and standards, the digital transformation of industries is accelerating

The "14th Five Year Plan"[4] for the development of the construction industry issued by the Ministry of Housing and Urban Rural Development clearly proposes the goal of achieving a proportion of over 30% of newly built buildings in prefabricated buildings by 2025, demonstrating the firm determination of the national level to promote the industrialization and digitization of construction. Through a series of policies,

regulations, and pilot demonstrations, the standardization level of the industry has been rapidly improved, and the implementation path of enterprises in implementing digital technology has become clearer. the application of new generation information technologies, such as industrial Internet, building information model (BIM) and artificial intelligence (AI), in the field of construction continues to mature, prompting the industry to gradually move from traditional operation mode to intelligence and informatization. Some strong construction companies have built their own integrated digital platforms to incorporate cross departmental and cross business line data resources into a unified management system, thereby significantly improving the collaborative efficiency of the entire value chain. On this basis, the application of BIM technology is no longer limited to the design stage, but gradually extends to the construction and operation links, forming a combination of innovative technologies such as digital twin and 5G remote construction, making project management more refined and visualized, and bringing new space for cost reduction, efficiency improvement, and project quality enhancement. From the overall trend, the investment and application depth of digitalization in the construction industry are still increasing, laying a solid foundation for future large-scale popularization and technological upgrading [5].

1.4 Structural shortage and capacity gap of professional talents, hindering the implementation of new technologies

At present, the supply and demand ratio of composite technical talents with both civil engineering and AI algorithm capabilities is 1:5, and there is a shortage of over 500000 people in positions such as robot operation and maintenance and BIM development. However, traditional construction workers are older and face difficulties in technological transformation. Over 60% of workers lack training in operating smart devices, which hinders the implementation of new technologies.

2. DEVELOPMENT TREND OF HOUSING CONSTRUCTION INDUSTRY

The deep integration of new generation information technology and industrial construction technology is leading the transformation of the construction industry from traditional construction to intelligent construction.

2.1 Improving quality and reducing costs will become the main theme of the industry

With the popularization and application of technological innovation achievements, the implementation benefits of intelligent construction in improving the quality and reducing costs of engineering construction will become increasingly significant. For example, in terms of design, the rationality of the design scheme is fully demonstrated through 3D simulation design, which improves the safety and comfort of living in buildings such as lighting, ventilation, and temperature; In terms of materials, key material quality traceability can be achieved through intelligent production, avoiding the flow of unqualified building materials into construction sites; In terms of construction, through intelligent construction equipment and the construction industry Internet, the industrial construction capacity and digital management level of engineering projects will be improved to build houses like cars; In terms of usage, providing detailed housing archives through the delivery of 3D building information models can provide support for conducting housing physical examinations and intelligent operation and maintenance.

2.2 The depth and breadth of technological applications will be further expanded

Artificial intelligence, as the core technology of the new round of technological revolution and industrial transformation, will profoundly affect the research and application of intelligent construction technology. With the increasing maturity of artificial intelligence technology, the application depth of intelligent construction technology will gradually shift from the perception and substitution stage to the intelligent stage. At the same time, as intelligent construction technology products become increasingly mature, their purchase and usage prices will also decrease, which will be conducive to the promotion and use of intelligent construction technology in more fields, enterprises, and projects, gradually realizing the large-scale application of mature

technology products.

Based on the current development status and trends of the above-mentioned industries, it is predicted that the demand for talent and skills in the construction industry will undergo three changes in the future.

2.3 Transitioning from "process oriented" to "composite oriented".

Previously, the professional demands of most positions in the construction industry revolved around the process flow and construction technology, emphasizing the mastery of materials, mechanics, and engineering specifications. With the rise of digital architecture, BIM、Cloud computing, robot construction and other technologies are showing a trend of interdisciplinary integration, and simple process oriented talents are unable to handle the overall planning and decision-making of the new generation of projects. Enterprises urgently need composite talents who not only understand architectural professional knowledge, but also are familiar with information technology, data analysis, and management methods. Engineers should not only be limited to on-site measurements and understanding of drawings, but also need to master modeling software, data management, and even algorithm analysis to cope with the real-time collaboration and information sharing of multiple disciplines in the complex network environment.

2.4 Transitioning from "experience oriented" to "data-driven".

Traditionally, project managers or construction directors rely more on personal experience or industry conventions to schedule and coordinate resources. In the digital age, a large amount of process data (such as sensor monitoring, drone aerial surveys, and real-time information from IoT terminals) continues to flood in. Managers need to have data filtering and insight capabilities, be able to use platform tools to comprehensively analyze progress, quality, and cost, and make predictions about risks through modeling and forecasting. A large number of enterprises have found that talents with data mining or algorithm modeling background can significantly improve project decision-making efficiency and accuracy in engineering practice. Therefore, "data-driven" is gradually replacing "experience oriented" in talent demand.

2.5 Transitioning from 'single domain deep cultivation' to 'multi role collaboration'.

With the widespread application of BIM in design, construction, and even operation and maintenance stages, different professions need to collaborate on the same data model. In the past, architects, structural engineers, mechanical and electrical engineers, and other positions that tended to work independently, now need to complete information exchange and change management on the same platform. This means that relevant talents not only need to have a deep understanding of their own profession, but also need to have cross disciplinary communication, coordination, and conflict resolution abilities. the larger the scale and more specialized the modern construction project, the more it requires comprehensive managers to coordinate the overall situation. the resulting demand for "multi role collaboration" is a new challenge for talents in terms of soft skills and comprehensive qualities.

3. CONCLUSIONS

This study is based on authoritative data from the National Bureau of Statistics and the Ministry of Housing and Urban Rural Development, and systematically analyzes the current development status and future trends of the construction industry.

Driven by policies, the digital transformation of the construction industry is accelerating, and the application of technologies such as BIM and AI is extending from design to construction and operation, driving the industry towards intelligence and informatization. However, the structural shortage of composite talents has become a key bottleneck for the implementation of technology. the supply and demand ratio of composite technical talents with both civil engineering and AI algorithm capabilities is 1:5, and the difficulty of traditional construction workers' technological transformation also restricts the popularization of intelligent construction.

In the future, intelligent construction will take "improving quality and reducing cost" as the core goal, and improve project quality and efficiency through 3D simulation design,

intelligent production, construction industry Internet and other technologies. Enterprises will become the main body of technological innovation, leading the deep integration of industry, academia and research, and promoting the large-scale application of intelligent construction technology. In this context, there will be a significant shift in the industry's demand for talent: from a "craft oriented" to a "composite oriented" approach, emphasizing interdisciplinary knowledge and skills; Transitioning from "experience oriented" to "data-driven", emphasizing data analysis and algorithm application capabilities; the shift from "deep cultivation in a single field" to "multi role collaboration" requires talents to possess cross disciplinary communication and coordination skills.

REFERENCES

[1] China International Contractors Association Report on the Development of China's Foreign Contracted Projects in 2023 [R]. Beijing: Ministry of Commerce, 2024.

[2] Ye Ming, Wang Kaiqiang, Huang Yimiao. Intelligent Processing Technology for Steel Reinforcement Products [M]. Beijing: China Architecture&Building Press, 2021.

[3] Ding Lieyun, Qian Feng, Cui Zheng. the Construction of Digital Architecture Talent Chain and the Path of Industry Education Integration [A]. Proceedings of the Digital Architecture Talent Chain Forum [C]. Wuhan: National Digital Architecture Industry Industry Education Integration Community, 2024:1-15.

[4] Ministry of Housing and Urban Rural Development 14th Five Year Plan for the Development of the Construction Industry [Z]. 2021.

[5] Li Ming, Wang Jianhua. Research on the Application of Intelligent Construction Technology in Building Industrialization [J]. Building Science, 2023, 39(5):12-20.

An Effective Classroom Centered on Student Learning - the Case of Pharmacy

Limei Wang
Zibo Vocational Institute, Zibo, Shandong, China

Abstract: The main objective of the classroom revolution is to improve the efficiency of classroom teaching, i. e. to create an effective classroom. Efficient classroom requires the cooperation of teachers, students and schools to achieve success. Creating an efficient classroom requires the cooperation of teachers, students, and the school to achieve success.
Keywords: Classroom Revolution, Effective Classroom

1. INTRODUCTION

Pharmacy is the main professional course for pharmacy majors, which occupies an important position in the training program of pharmacy majors and is a comprehensive applied discipline. Cultivation objectives include drug ethics, drug regulation, drug technology, and in order to achieve a better effect of educating people, it also integrates the content of course ideology and politics; in order to improve the innovative thinking ability of students, it also tries to integrate the content of innovation and entrepreneurship. In order to complete the cultivation of the above abilities in one course, there is an urgent need to reconstruct and optimize the teaching design of the course to create an efficient classroom.

Among them, the school needs to provide the necessary online and offline teaching conditions for classroom teaching to lay the foundation for the smooth progress of the classroom; teachers need to have the professional ability and teaching ability required by the course and organically integrate the cultivation objectives of the course into each classroom teaching to give full play to the role of external guidance; and finally, in the classroom, with the help of effective teaching modes and teaching methods, the external guidance of the teachers will stimulate the students' internal motivation to learn, that is, the “internal drive”. Finally, in the classroom, with the help of effective teaching mode and teaching methods, the teacher's external guidance will stimulate the students' internal motivation to learn, i. e. internal drive.

2. ISSUES TO BE ADDRESSED

Combined with the cultivation objectives of the course, the assessment indexes of the course are refined to cultivate high-level pharmacy professional skilled talents with drug ethics, knowledge of drug regulations, good drug skills and innovation. Establish a three-dimensional assessment and evaluation method combining process assessment and final assessment with multi-dimensional assessment indexes of ideology, knowledge, skills and innovation, and introduce them to students in the first class of the course to guide students' efforts in the later stages.

Based on socialist core values, students are guided to self-management and self-restraint to enhance the learning effect in the classroom. Introduce the self-evaluation sheet, which mainly focuses on the persistent problems of classroom management:: not bringing textbooks, playing with cell phones, sleeping, etc. Emphasize the importance of students' self-restraint in life, and give full encouragement and trust to practice it in the classroom. Teachers and students work together to create an efficient classroom.

Multi-channel integration of course politics, truly silent. Due to the limited length of the classroom, in the teaching of knowledge and skills at the same time but also into the course of political thinking and innovation and entrepreneurship and other elements of the time is relatively tight, you can rely on other online ways to integrate, the course mainly rely on the new media are: online teaching platform WeChat public number, etc. constantly update the teaching content, the

theoretical knowledge of the profession and the value of the guidance of the organic combination of the process of imparting knowledge to strengthen the value of the lead.

3. PROBLEM SOLVING STRATEGIES

First, the efficient classroom construction ideas and necessary conditions: efficient classroom of the two main bodies: teachers and students, need to make their own efforts to work together to improve the classroom learning effect.

The teacher's professional ability, teaching ability, innovation and entrepreneurship ability reserves: I am a full-time teacher in the Department of Pharmacy, mainly responsible for teaching the core curriculum of the pharmacy profession “Pharmacy”, the course project for the college's fine online open course, continuing education network courses, based on which developed a community course “community drug dosage form rational application guidance”. He has served as the innovation and entrepreneurship tutor of the college, and has been awarded the title of excellent innovation and entrepreneurship tutor of the college for many times. At the same time, as the instructor of Pharmaceutical Youth Club, she guided the club members to participate in the college and various innovation and entrepreneurship competitions and achieved excellent results. the above abilities lay a solid foundation for good classroom teaching design and guiding students to improve their learning effect.

Self-evaluation sheet for classroom management: the main problem of the current efficient classroom is that students do not cooperate, can not be pulled, analyze the reasons for this is that the higher vocational students' self-restraint is poor, learning habits are bad, the attitude towards learning is not correct enough, how to solve this problem is the key to build an efficient classroom, but also the key to the success of the classroom revolution. To address the problem of students' weak learning initiative and poor study habits, the correct guidance of students' learning behavior is included in the course assessment as part of the self-evaluation sheet, which is mainly aimed at the problem of playing cell phones in class, sleeping, and not taking textbooks and other common common problems that affect the efficiency of classroom listening. To address this problem, in the current era of information technology, the lecture process to take the collection of cell phones to treat the symptoms but not the root cause, the upper policy, the lower policy, and can not really solve the root of the problem, but may also trigger the rebellious mentality of some students. This classroom from 2019 in the course assessment evaluation, there is a self-evaluation, the evaluator students, the form is shown in Figure 1, through years of teaching feedback found that through the introduction of self-evaluation sheets, 90% of students can do a good job of self-management in the classroom, and the classroom learning effect is greatly improved.

Curriculum Civics is effectively integrated into the curriculum to enhance the effect of Civics: This course has built a curriculum Civics system combining point, line and surface. Under the premise of fully reflecting the goal of nurturing people in the curriculum and fully exploring the Civics elements of the curriculum, we have condensed the “Civics on the Points”, which is the organic integration of the Civics elements with the knowledge points, the “Civics on the Line”, which is the organic integration of the vocational qualities with the teaching contents, and the “Civics on the Surface”, which is the organic integration of the norms of students' learning behavior with the socialist core values. the “line ideology” and the “surface ideology” of the organic integration of the norms of students' learning behavior and the socialist core values have been refined, thus constructing a “point-line-surface” combination of the ‘Pharmacy’ course ideological education and the “Pharmacy” curriculum. Pharmacy" course political education system. Through several years of teaching practice, the “point line surface” combination of the “Pharmacy” course of the ideological and political education system has achieved the goal of the organic combination of knowledge transfer, vocational literacy training and value shaping of the curriculum training.

3.4 Exploration and enhancement of students' innovative and entrepreneurial ability: At present, Pharmacy is under construction as a cultivation course for specialized and creative integration, and how to enhance students' innovative thinking is also one of the

cultivation objectives of the course. In the assessment and evaluation indexes of the course, there are value-added evaluations such as the Golden Idea Program, which encourages students to think in the context of daily life in the course of study, and to raise questions - to raise innovative questions - to solve problems in the context of what they have learned. Through the implementation of this program, most students have the ability to think innovatively, and some students have achieved excellent results in innovation and entrepreneurship competitions: for example, Jiang Haoxin, a student of grade 19, raised the point that he saw a small experiment on Shake Shack that was more similar to the process of preparing drop pills, and discussed with me whether it was also a drop pill agent. We watched the video together and found that the video for the reaction between sodium alginate and calcium lactate to make popping beads, the principle of sodium alginate and calcium ions to form calcium alginate gel, and the principle of the preparation of drop pills is not the same. From this, I will guide us to ibuprofen suspension difficult to take medication can be combined with sodium alginate and calcium lactate reaction to produce pop beads, so as to improve children's oral ibuprofen difficult to this problem, thus, the birth of the innovation and entrepreneurship project: ibuprofen particles of the magnificent turn - ibuprofen pop beads.

4. IMPLEMENTATION EFFECT

Students' self-discipline is improved, immersed in listening to lectures, teachers can put more energy into teaching, and the learning effect is greatly improved.

Multiple dimensions are integrated into the course ideology, and with the personal influence of teachers, the course ideology is effective.

the effect of innovation ability enhancement is beginning to show, a number of students involved in innovation and entrepreneurship competition won excellent results. Students' ability to raise questions and solve problems has been improved.

5. INNOVATION AND DEMONSTRATION

The introduction of self-evaluation sheets, so that students from being managed to self-management classroom management effect to enhance the obvious: first of all, students are invited to understand that the students themselves are the main responsibility for learning, the teacher is to guide and assist in the role of; secondly, so that students recognize that good self-management is a life-long need to deal with the subject of early start to early benefit; furthermore, to give the students full encouragement and trust, they will do Secondly, students should realize that self-management is a lifelong subject and it is better to start early than later.

Enhance students' innovative and entrepreneurial ability by establishing value-added evaluation. By introducing value-added evaluation in the course evaluation: Golden Idea Program, it can stimulate the innovative ideas and innovative ability of some students, and at the same time lay a good foundation for participating in various innovation and entrepreneurship competitions and starting their own business after graduation.

Teachers should improve their personal influence to lay the foundation for efficient classroom. Teachers should be disciplined in their own lives, improve their professional skills, and realize the unity of knowledge and action, so that they can establish prestige in front of the students, and at the same time, they can make the students feel the sincerity in the process of teaching, so that they can effectively transfer the character, knowledge and skills. Development of multi-channel communication with students: teachers set up their own WeChat public number, wlm teaching and learning, through the public number to share information related to the course, but also can convey positive values, so that closer to the opportunity to communicate with students, but also allows students to fragmented time in a timely manner for the learning of knowledge.

6. REFLECTION AND IMPROVEMENT

The motivating effect of students' self-evaluation is effective for most students, but not for all students, because a strict classroom management atmosphere has not been formed, and the effect will be better if it can be combined with the improvement of the college's academic style. At the same time,

self-evaluation is currently recorded on paper, and if it can be combined with intelligent classroom, the efficiency will be improved.

Innovation and entrepreneurship is still the main task: although through the course of the Golden Idea Program part of the students' innovation ability has been improved, but most of the students' thinking rigid unwillingness to think seriously, the reversal of the way of thinking needs to be created by the collective efforts of the professional courses.

The implementation of mixed teaching reform is not in place: the current teaching supervision and management of the College still continues the old teaching methods, not conducive to teachers to carry out innovative teaching, I hope that the College can give teachers more space for innovative teaching methods, to enhance the effectiveness of teaching to provide a better atmosphere.

REFERENCES

[1] Guifen Liu, Optimizing Instructional Design and Building Efficient Classroom Exploration and Practice. Project Reflection Professional. 2023, 28-29.

[2] Yi Sun, Shanshan Qu, Construction of efficient classrooms in schools. Western Quality Education. Volume 9, Issue 17, September 2023.

Green Finance Enabling New Productive Forces: Mechanisms, Challenges, and Pathways

Zhihao Wang
Zibo Vocational Institute, Shandong, China

Abstract: Currently, the Chinese economy is entering a new stage of high-quality development, with New Productive Forces becoming the core driver for building a modernized industrial system. New Productive Forces are innovation-driven, characterized by high technology, high efficiency, and high quality, and distinctly embody green attributes. Simultaneously, China is vigorously developing green finance, aiming to provide support for the economy's green transition. the green characteristics of New Productive Forces are highly aligned with the service direction of green finance. This paper aims to analyze how green finance enables the development of New Productive Forces through mechanisms such as capital channeling, innovation incentives, and resource optimization, and explores the key challenges faced in this process, including standard alignment, mismatch in financing structure, and information asymmetry. the study suggests that to fully leverage green finance's supporting role for New Productive Forces, it is necessary to further improve policy standards, innovate financial products, strengthen information infrastructure, and cultivate talent. the research in this paper holds theoretical and practical significance for understanding the synergistic relationship between green finance and New Productive Forces, and for promoting high-quality economic development.

Keywords: Green Finance; New Productive Forces; Enabling; Mechanisms; Challenges; Pathways

1. INTRODUCTION

The Chinese economy is undergoing a historic shift from high-speed growth to high-quality development, urgently requiring new growth engines and development models. Against this backdrop, "New Productive Forces, " representing an advanced form of productivity for future development, have been accorded significant importance. China has elevated the development of green finance to a national strategy, establishing a financial support system aimed at channeling funds towards environmentally friendly industries and projects.

New Productive Forces and green finance are not isolated concepts; there is an intrinsic and close connection between them. [1] the green attributes of New Productive Forces dictate that their development cannot be separated from the support of green finance, while the rise of New Productive Forces also provides new investment areas and development opportunities for green finance. However, how green finance can specifically and effectively enable New Productive Forces, which are still in their nascent and developing stages, and what practical challenges may be faced in this process, still require in-depth analysis and discussion.

2. INTRINSIC MECHANISMS OF GREEN FINANCE ENABLING NEW PRODUCTIVE FORCES

2.1 Capital Channeling and Optimized Factor Aggregation

A core function of green finance is to guide social capital from high-polluting, high-emission sectors towards green, low-carbon, and sustainable industries and projects. Through various financial instruments such as green credit, green bonds, and green funds, green finance can provide differentiated financing support, including more favorable interest rates, more flexible tenors, and more convenient approval processes, for green emerging industries characteristic of New Productive Forces (e. g., new energy, energy

conservation and environmental protection, green manufacturing, digital-green integration technologies). This "green preference" in capital flows forms a clear market signal, attracting more social capital, technology, talent, and other factors of production to converge in these forward-looking fields. This helps overcome the difficulties of expensive and difficult financing faced in their early stages of development, thereby providing the necessary financial "blood" for the cultivation of New Productive Forces.

2.2 Incentivizing Technological Innovation and Industrial Upgrading

The core of New Productive Forces lies in technological innovation. Green finance directly or indirectly encourages enterprises to research, develop, and apply green technologies through risk sharing and incentive mechanisms. For instance, green finance can provide support such as venture capital, startup loans, or intellectual property pledge financing for innovative technology projects with environmental benefits, reducing the R&D costs and market promotion risks for innovative entities. Carbon finance markets (such as carbon emissions trading) internalize environmental costs through carbon pricing mechanisms, providing economic incentives for enterprises to reduce emissions and upgrade green technologies, thereby promoting their transition towards more efficient and environmentally friendly production methods and fostering new forms of productivity. the emergence of the concept of transition finance also offers the possibility of financial support for traditional high-carbon industries to transform towards New Productive Forces through green and digital upgrading.

3. KEY CHALLENGES FACED BY GREEN FINANCE IN ENABLING NEW PRODUCTIVE FORCES

3.1 Challenges in Standard Alignment and Definition

New Productive Forces is a relatively new concept, and its connotations are still being enriched and developed. Existing green finance classification standards (e. g., green industry catalogs, green bond standards) primarily focus on mature green industry projects. However, many cutting-edge technologies and emerging business models involved in New Productive Forces, particularly their "green" attributes often reflected in high efficiency, low carbon, resource conservation, or enabling the green transformation of traditional industries, are more complex to define and measure than traditional green projects. [2] How to accurately and flexibly incorporate innovative fields with green attributes within New Productive Forces into the scope of green finance support, ensuring the synergy and foresight of the standard system, is the primary challenge currently faced.

3.2 Mismatch Between Financing Structure and Project Characteristics

Projects related to New Productive Forces, especially those in the early stages of R&D or industrialization, typically have characteristics such as high technical uncertainty, novel business models, asset-light nature, lack of traditional collateral, long profitability cycles, and high investment risks. Traditional green finance products, which are predominantly bank credit-based, are often more suitable for mature projects with stable cash flows and significant assets (e. g., wind farms, solar power plants). This results in a structural mismatch between the supply of green finance and the demand from New Productive Forces. the supply of financial products better suited for supporting innovative, asset-light projects, such as equity investment, venture capital, long-term capital, and intellectual property pledge financing, is relatively insufficient, affecting the channeling of funds to the segments of New Productive Forces most in need of support.

3.3 Information Asymmetry and Difficulties in Risk Assessment

The field of New Productive Forces involves a large number of cutting-edge technologies and innovative business models, and financial institutions generally lack the professional knowledge and experience to assess their technical feasibility, environmental benefits, and future commercial prospects. At the same time, environmental data, technical data, and financial information related to these projects are often opaque, non-standardized, or even difficult to obtain, exacerbating the problem of information asymmetry. This makes it difficult for financial institutions to accurately identify

and assess the environmental, technical, and market risks of New Productive Forces projects, increasing the difficulty and uncertainty of financing decisions, potentially leading to phenomena like "dare not invest" or "cannot invest accurately. "

4. PATHWAYS TO PROMOTE GREEN FINANCE ENABLING NEW PRODUCTIVE FORCES

4.1 Improve Top-Level Policy Design and Standard System Construction

Explicitly include supporting the development of New Productive Forces in the strategic planning and policy framework of green finance. Based on existing green finance standards, research and formulate or supplement classification guidelines and assessment standards for projects characteristic of New Productive Forces, such as green technology innovation and green industry integration, enhancing the inclusiveness and foresight of standards. Promote synergistic alignment of green finance standards with national innovation strategies, industrial policies, and technology directories, improving policy precision and guidance.

4.2 Innovate Diversified Green Financial Products and Services

Encourage and support financial institutions in developing diversified green financial products tailored to the needs of New Productive Forces. Vigorously develop green equity investment, venture capital, and M&A loans to broaden financing channels. Explore innovative green finance models based on intellectual property, data assets, and future income rights. Develop transition finance to support traditional industries transforming into New Productive Forces through green and digital upgrading. Utilize digital technology to develop digital green finance platforms, improving financing efficiency and accessibility. [3] Research and establish sound risk-sharing mechanisms among government, financial institutions, and enterprises to alleviate financial institutions' concerns about supporting New Productive Forces projects.

4.3 Strengthen Information Infrastructure and Capacity Building

Build an authoritative, unified, and open green information sharing platform, integrating multi-dimensional information such as enterprise environmental performance, green technology, intellectual property, and operational data, to enhance information transparency and reduce information asymmetry. Encourage financial institutions to strengthen cooperation with research institutions, industry associations, and professional assessment agencies to improve their capabilities in judging technology and market aspects of New Productive Forces. Strengthen the financial talent pool, cultivate multi-disciplinary professionals who understand both finance and green technology and innovative industries, and enhance financial institutions' ability to identify, assess, and manage the risks of New Productive Forces projects.

5. CONCLUSION

New Productive Forces are a new engine leading China's future high-quality development; their intrinsic green attributes naturally connect them with green finance. Green finance, through mechanisms such as capital channeling, innovation incentives, and resource optimization, is a key force enabling the formation and growth of New Productive Forces. However, there are still many challenges currently faced in areas such as standard alignment, adaptability of financing models, and information and risk assessment. In the future, by improving policy standards, innovating financial products, strengthening information infrastructure, and building capacity, among other pathways, the enabling level of green finance for New Productive Forces should be further enhanced, thereby powerfully supporting China's economy in achieving development that is of higher quality, more efficient, more equitable, more sustainable, and more secure.

REFERENCES

[1] Gao Z, Zhao Y, Li L, et al. Nurturing nature: the role of green finance in reviving urban biodiversity [J]. Quarterly Review of Economics and Finance, 2025, 102 102005-102005.

[2] Kang S, Geng W. Green finance innovation and high-quality economic development: Evidence from a quasi-natural experiment [J]. Finance Research Letters, 2025, 78 107209-

107209.
[3] Yuchen L, Gang C. An Analysis of Digital Finance in Promoting the Development of New Quality Productivity [J]. Proceedings of Business and Economic Studies, 2024, 7(5):227-233.

Research on the current situation and path of the inheritance and development of Hakka music culture in Western Fujian

Yu Yao
Normal Education College of Longyan University, Longyan, Fujian, 364012, China

Abstract: The Hakka music culture in western Fujian has a long history and is a precious cultural heritage in the western region of Fujian Province. It attracts the attention of the general public and scholars with its unique style and rich connotation. This article aims to study the inheritance and development of Hakka music culture in western Fujian and explore its future path.
Keyword: Hakka music, cultural inheritance, and development path in western Fujian

1. THE INHERITANCE AND DEVELOPMENT STATUS OF HAKKA MUSIC CULTURE IN WESTERN FUJIAN

Nowadays, more and more attention has been paid to the Hakka music culture in Western Fujian. Both the relevant government departments, social organizations and family individuals attach great importance to its inheritance and development. At present, the way of inheritance and development of Hakka music culture in Western Fujian is as follows:

First, the inheritance of traditional artists. At present, the inheritance of Hakka music culture in Western Fujian mainly relies on the teaching of traditional artists. These artists usually start to receive music education from a young age, and pass on their knowledge and skills to future generations through oral communication and personal guidance to ensure the continuation of the music tradition. At the same time, traditional artists pass on and propagate the Hakka music culture in Fujian through music performances and performance activities. They can perform in various occasions, such as concerts, stage plays, music festivals, etc., by displaying excellent Hakka music works and performance skills in Fujian, they can attract the attention of the audience, inherit music culture and promote its development. Some traditional artists inherit and expand the Hakka music culture in Fujian by creating new music works. They integrated the traditional Hakka music elements in Western Fujian into modern music creation, creating music works that keep pace with the times, and injecting new vitality and creativity into the music culture.

Secondly, the promotion of schools and institutions. In recent years, in order to better inherit and develop Minxi Hakka music culture, many schools and institutions actively carry out relevant education and training activities. Traditional artists have assumed the role of education and training, and taught the skills and knowledge of Hakka music in Fujian to the young generation. They can serve as teachers in music schools, art training institutions, etc., set up special music courses and workshops, guide students to learn the performance skills and singing methods of Hakka music in Fujian and understand the cultural connotation behind it. They set up special music classes or clubs to provide systematic music teaching for students, and hold various competitions and performances to stimulate the young generation's interest and love for Hakka music in Fujian.

Thirdly, cultural festivals and performance activities. In the west of Fujian, various cultural festivals and performance activities are regularly held to promote the inheritance and development of Hakka music culture in the west of Fujian. For example, the Hakka Cultural Festival, music festival and other activities provide a platform and stage for the exhibition and presentation of the Hakka music culture in Fujian, attracting more people to understand and participate. In addition, there are also some community and group activities, that is, organizing and participating

in various Hakka music related activities in Fujian, such as music competitions, Temple Fair performances, community performances, etc. Through the communication and interaction with the community masses, more people can contact and understand Minxi Hakka music, and enhance their sense of identity and inheritance.

Finally, recording and digital inheritance. In order to facilitate the preservation and spread of Minxi Hakka music culture, some special music institutions and scholars began to work on music recording and digital inheritance. They recorded traditional music, and used modern scientific and technological means to sort out and preserve it, so that Hakka music in Fujian can be heard and learned at any time. They are engaged in the research of Hakka music in Western Fujian, deeply exploring its history, characteristics and evolution process, and recording, sorting and publishing the research results. This can not only deepen people's understanding of Hakka music in Fujian, but also provide valuable information and references for future generations.

Despite the above measures, the inheritance and development of Hakka music culture in Western Fujian still faces some challenges in modern society

First, brain drain. With the change of modern lifestyle, many young people are gradually away from traditional music culture, leading to the decrease of the number of Hakka music inheritors in Fujian. the brain drain has a certain pressure on the stability and continuity of Hakka music in Fujian. First of all, with the development of society and the process of modernization, many young people focus on more modern professional fields, and their interest in traditional music culture is gradually reduced, which leads to the loss of heritage talents. Secondly, the reform of the education system. the deepening of the reform of the education system makes the school education focus more and more on science, technology, engineering, mathematics and other modern chemistry, while the status of traditional music and culture education is relatively low, and the music education content of many schools is inclined to western music, while ignoring the inheritance of local traditional music. This also makes the brain drain of music cultural heritage more serious.

Thirdly, the way of Master inheritance is not perfect. the inheritance of traditional music culture often needs to rely on the oral transmission of the master, but because of the limited resources of the master, many young people can't find the right master to learn. At the same time, some teachers do not have perfect teaching methods and systems, which can not effectively teach to students.

Second, changes in market demand. the music market demand in modern society is also changing, and the public's cognition and acceptance of Hakka music in Fujian is not as good as before. This also brings challenges to the inheritance work, which requires constant innovation and adaptation to market demand. First of all, the market demand for the inheritance of Hakka music culture in Fujian is a relatively local and specific area. Due to the lack of understanding of the specific time range and situation, it is unable to provide specific changes in market demand. But generally speaking, the market demand for music and cultural heritage is affected by many factors, including social and economic development, cultural identity, art market demand and so on. Secondly, with the development of social economy and the improvement of people's living standards, people's attention to music culture is gradually increasing. It also means that the demand for the protection and inheritance of traditional music culture will increase. At the same time, with the development of globalization, some traditional cultural elements have been impacted and threatened, which further stimulates people's demand for local music and cultural heritage. In addition, the young generation's identity and pursuit of music culture are also changing. They are more inclined to contact emerging music forms and cultural trends, which may bring a certain challenge to the inheritance of traditional music culture. Therefore, in the change of market demand, it is necessary to explore how to better combine traditional music culture with contemporary music trends to meet the needs of different age levels and groups.

Third, there is a lack of professional training mechanism. Although there are schools and institutions for the teaching and training of Hakka music in Fujian, there is still a lack of professional talent training mechanism. the

lack of professional training may lead to the failure of effective inheritance and development of traditional music skills and artistic charm. the reasons may be as follows: first, the lack of resources. Restricted by the economic level and social development, Western Fujian is relatively short of cultural and educational resources. Limited infrastructure, music equipment and other conditions limit the development of professional training institutions. Secondly, the education system and policy support are not enough. At present, the music education in Western Fujian is generally dominated by schools and focuses on general education. There is no clear direction and plan for the training of professional talents. In addition, the relevant policies did not give sufficient support and support to cultural heritage. Thirdly, the factors of insufficient teachers. Professional music education needs teachers with rich teaching experience and professional knowledge. However, due to the lack of professional music education institutions and career development opportunities in Western Fujian, there is a lack of high-level teachers in the field of music education, which is difficult to meet the training needs of professional talents.

2. THE INHERITANCE AND DEVELOPMENT PATH OF HAKKA MUSIC CULTURE IN WESTERN FUJIAN

Since modern times, Fujian Hakka music has gradually walked out of the folk, and received the attention of the academic and art circles. Many institutions dedicated to the research and promotion of Hakka music were established, and activities to promote Hakka music culture were strengthened. At the same time, Hakka music combines modern music technology and style, opening a new era of development. Although the Hakka music culture in the west of Fujian faces some challenges in the process of inheritance and development, through the efforts of traditional artists, the promotion of schools and institutions, and the means of cultural festivals and digital inheritance, the Hakka music culture in the west of Fujian has been passed on and developed to a certain extent. At the same time, it also needs more attention and support to ensure that it can continue and spread in modern society. From the analysis of the current situation and problems of the inheritance of Hakka music culture in Western Fujian, we can consider the optimization of the path from the following aspects:

First, strengthen education and incentive work, and do a good job in the cultivation of inheritors. First of all, through the way of strengthening music culture education, increasing investment and attention to traditional music culture education in school education, opening related courses, holding music competitions and activities to increase students' understanding and interest in traditional music culture. Secondly, through concerts, performances, exhibitions and other forms, more people can understand and love traditional music culture, so as to attract more young people to participate in the inheritance work. Thirdly, establish training institutions and inheritance bases. Establish professional training institutions and inheritance bases to provide professional training and guidance for people who are interested in learning traditional music culture, and at the same time, provide more opportunities for inheritance talents to show their talents. In addition, the incentive system and incentive mechanism should be established. By setting up incentive systems and incentive mechanisms, those who have made outstanding contributions to the inheritance of traditional music culture are encouraged to stimulate their enthusiasm and enthusiasm and promote the development of inheritance work. Through the comprehensive implementation of the above measures, we should try to solve the problem of brain drain in the inheritance of Western Fujian music culture, and protect and inherit the traditional music culture.

Second, attract professionals to join and improve professional skills. the inheritance of Hakka music culture in Western Fujian was first carried out through oral transmission. the old artists with rich experience and skills will impart music knowledge and skills to the young generation, so that they will gradually become qualified music successors. This way of inheriting can ensure that the purity and uniqueness of traditional music can be maintained. Through the support of the government, we will increase the policy

support for the inheritance of Hakka music culture in Fujian, encourage qualified institutions and schools to set up professional music education courses, and provide necessary teaching resources and facilities. Through the development and implementation of a reasonable training plan, the establishment of professional music education and training plan, attract talents with music education background and potential to participate in training, and improve their professional ability. Through the recruitment of excellent teachers, the introduction of professional music education talents, enhance the Faculty of professional talent training institutions, and improve the quality of teaching. By expanding cooperation and exchanges, we can cooperate and exchange with professional music education institutions in other regions, learn from their successful experience, and strengthen the training of professional music talents. Through the organization of cultural activities, it is encouraged to hold the activities of Minxi Hakka music cultural heritage, such as music competitions and music festivals, so as to improve the social attention and support for Minxi Hakka music cultural heritage.

Third, to enhance the inheritance and development of Minxi Hakka music culture through various education methods. From the perspective of family education, many Hakka music families in Western Fujian have music traditions handed down from generation to generation. Family members will teach each other music knowledge and skills, and pass on the music culture through family education. From the perspective of school education, with the development of society, more and more schools began to pay attention to the inheritance of Hakka music culture in Fujian. They can set up music classes, courses or majors to provide systematic music education and cultivate students' music literacy and skills. Under the promotion of school education, more young people have the opportunity to contact and learn Fujian Hakka music. From the perspective of social groups and institutions, some music groups, societies and institutions also play an important role in promoting the inheritance of Hakka music culture in Fujian. They can organize various music activities, competitions, performances, etc. to provide a platform for display and learning for the majority of fans. At the same time, they also set up training courses, seminars and other activities to promote the inheritance and development of music culture. From the perspective of cultural festivals and performances, Western Fujian regularly hosts various cultural festivals and performances, including Hakka Cultural Festival and music festival. These activities not only show the rich connotation of Hakka music culture in Fujian, but also provide important opportunities for inheritance. Through performances and exhibitions, it can increase the public's cognition and understanding of Minxi Hakka music, and stimulate more people to participate in the inheritance work.

Fourth, adapt to market demand through multi-channel inheritance and development. First, innovate the form and content. Traditional Hakka music culture can be presented in an innovative way, combining modern music elements and pop music styles to attract more young people's attention. You can try various music forms, such as electronic music and rock music. In terms of song content, it focuses on current hot topics or topics that young people care about, making music more contemporary. Secondly, multi-channel publicity and promotion. Through the Internet, social media and other new media platforms, the promotion of Minxi Hakka music culture was strengthened. Use micro-blog, WeChat official account and other platforms to release music works, music videos, music teaching and other content, interact with fans, and enhance the attention and influence. Thirdly, hold music performances and activities. Regularly held Minxi Hakka music concerts, music festivals and other activities to attract more audiences to participate. At the same time, some well-known musicians or stars can be invited to perform to increase attraction and influence. Thirdly, cultivate professional talents. Strengthen the training of professional talents in the field of Hakka music culture in Fujian, including music creators, singers, instrument players, etc. Provide professional training and education opportunities, improve their music literacy and performance level, so as to better adapt to the market demand. Finally, strengthen cooperation and exchange:

cooperate and exchange with other music and cultural institutions, musicians, orchestras, etc., learn from the successful experience of other regions, learn the advantages of various types of music culture, and form a richer variety of music creation and performance forms. In a word, in order to adapt to the market demand, the Hakka music culture in Western Fujian needs to work hard in innovation, publicity and promotion, performance activities, talent training and cooperation and exchange, and constantly improve its influence and popularity.

ACKNOWLEDGEMENTS

Longyan College School level Project (Social Sciences) "Research on the Inheritance and Development of Red Music in Western Fujian" (Project Number: LB2023014)

REFERENCES

[1] Feng Jicai Research on the Methodology of Inheriting Population History [M], Chinese Publishing House, 2006 edition

[2] He Zhixi Complete Collection of Intangible Cultural Heritage in Western Fujian [M], China International Broadcasting Press, 2017 edition

[3] Wang Yuanting History of Minxi Han Opera [M], Haichao Photography Art Publishing House, 1996 edition

[4] Liu Jialiu, He Zhixi Selected Traditional Screenplays of Minxi Han Opera [M], China Literature and History Press, 2015 edition

[5] Liu Guojie Introduction to Xipi Erhuang Music [M], Shanghai Music Publishing House, 1989 edition

[6] Wang Zhuomo Research on Minxi Han Opera and Folk Music [M], Beijing Yanshan Publishing House, 2000 edition

Predicting Soccer Match Results with Different Models: Which One is Practical and Precise?

Yunchuan Zhao
Zibo Vocational Institute, Zibo, Shandong, China

Abstract: Models used in soccer match result prediction could be mainly categorized into three kinds: Statistical Models, Rating Systems, and Machine Learning Models. With the development of data science technologies, and the expansion of data set, traditional statistical models and rating systems could not perform as well as machine learning models. In this report, previous studies on soccer prediction are explored and these previous works provide enough evidence about how machine learning approaches are better than traditional statistical models and rating systems. Finally, random forest could become the chosen model for all topics in OR and data analytics of sports to use.
Keywords: Statistical models, Rating systems, Machine learning models, Soccer

1. INTRODUCTION

Soccer could be said as the most popular sport in the world. At the beginning of 21st century, International Federation of Association Football (FIFA) estimated that the number of soccer players was around 250 million in all over the world; Moreover, there are more than 1.3 billion soccer fans in all over the world. In money perspective, from players' salaries to transfer fees, huge amount of money are involved, television broadcasting companies bid for the broadcasting rights strongly when major soccer event is coming, Constantinou (2019) states that the European soccer market alone was valued to more than €25 billion in 2016, and soccer betting was accounted for 65% of global sports gambling market. Betting companies need prediction models to predict results and set odds, so a capable predictive model is necessary; From analytical points, it is also fascinating to do the prediction on soccer match since soccer games present distinctive challenges.

Predictions were obtained from numerous predictive modelling methodologies in previous relevant academic works, these techniques could be divided into three mainly categories: statistical models, rating systems, and machine learning models. With a greater size of data set in real life, and the development of technologies in data science region is fast, machine learning models, usually can be seen as evolutions of statistical models or rating systems, would perform much better than other two categories in predicting soccer match results, and it is still having a lot of potentials for future development, so for future use, machine learning models will be suggested.

2. MODELS

2.1 Statistical Models

The original way on soccer game result prediction is using statistical models, and any developments or extensions of soccer predictive model are based on previous statistical outputs. In this paper, Double Poisson model, Bivariate Poisson model, Double Weibull Count Model and Bivariate Weibull Count Model are discussed.

Double Poisson model has assumed the goals from each team in a match is independent, so we could use this model to predict the probability of goals of both home team and away team by multiplying two teams' Poisson distribution functions, with scoring rate λH and λA.

Bivariate Poisson, by adding dependence between goals number and conceded goals, could be treated as an extension of Double Poisson model, where the dependence is also Poisson distributed.

Since Poisson models would not consider the situation where the data is under dispersion or

over dispersion, from continuous Weibull distribution, Weibull count model was derived to solve this problem. the probability of goal results in a match is calculated by multiplying probability distribution functions from each team, like Poisson model.

Bivariate type of the Weibull count model is also used by combining cumulative distribution function of Double Weibull count model with Frank copula function.

2.2 Rating Systems

The greatest contrasts between statistical models and rating systems is: rating systems were created to rank teams in a league or tournament, rather than to establish a probability distribution over the possible results (Hubáček, Šourek and Železný, 2021). Elo Ratings, Steph Ratings, Pi-ratings, Gaussian-OD Ratings and Berrar Ratings are going to be discussed.

For Elo rating system, after a single match, each team's rating is changing and the new rating at t+1 is formed. the changing part is by multiplying goal difference and its scaling parameter, with the difference between actual result and expected result.

The comprehensive ability of a team is represented in Steph ratings by a tuple (r, v), where r is the rating and v represents the variance. (Hubáček, Šourek and Železný, 2021). In Steph ratings, the variance of rating is increasing, and a bonus to players or teams that attend more match is introduced.

In Pi-ratings method, both home team and away team will be assigned two ratings representing their strength at home and not at home. After a game, the expectation and the actual result is going to be compared, and each team's rating at home or away will get updated separately.

Under Gaussian-OD rating system, each team's offense and defense are valued with a Gaussian distribution, moreover, performances on offense and defense are influenced by the performance variance.

Berrar ratings is forecasting the amount of goals by logistic function with the use of offensive and defensive abilities of each side (Berrar, Lopes and Dubitzky, 2019). In this model, the phenomenon that total goal number is greater than 5 is not considered because it happens relatively rare.

Machine Learning Models

All machine learning approaches could be treated as a combination of statistical models or rating systems with machine learning. In this paper, Dolores model, Linear Support Vector Classifier (LSVC), Random Forest (RF) and Bayesian Network models will be investigated

Dolores is a mixture model of Pi-rating system and a Hybrid Bayesian Network, by generating the ability score of a team from Pi-ratings, each team gets a final ratings and they are used in the Bayesian Network model as input.

Secondly, LSVC, a binary based model with some rating system feature, is used for computing the performance features and their feature weight in predicting match result. According to Li et al (2020), the performance of LSVC model is depending on two outcomes from calculation of LSVC model, the first one is team-rank that based on team's performance rating from feature weight calculation; the second output is predicted ranking.

Random forest is one of the most common machine learning approaches, it is a mixture of statistical models and machine learning model. Comparing with regular decision trees approach, random forest has a lower variance, and the risk of overfitting is weakened.

Finally, Bayesian Network (BN) could be treated as a combination of statistical models with machine learning technique.

3. RESULTS

3.1 Results of Statistical Models and Rating Systems

Hubáček, Šourek and Železný (2021) use the Open International Soccer Database v2 to do the prediction with all mentioned statistical models and rating systems. Model performances are determined by cross entropy (as xEnt in Table3.1), ranked probability score (RPS in Table 3.1) and accuracy (ACC in Table 3.1). Table 3.1 illustrates the results of all models they implemented. First, every model was performed similar with others because these models' definitions are quite close to each other; Berrar rating system has the lowest xEnt and RPS, both Weibull models have the highest accuracy than others, so they could be chosen for future prediction; Whereas Gaussian-OD ratings performed worse than other models, so it will not be

considered in the future.

	xEnt	RPS	ACC
Berrar	1.0246	0.2101	48.54
Bivariate Poisson	1.0251	0.2103	48.58
Double Poisson	1.0254	0.2103	48.57
Double Weibull	1.0255	0.2103	48.60
pi-ratings	1.0258	0.2103	48.56
Bivariate Weibull	1.0260	0.2105	48.60
Elo	1.0263	0.2105	48.49
Steph	1.0291	0.2114	48.26
Gaussian-OD	1.0347	0.2134	47.84

(Table3.1: Comparison of the tested models via the evaluation metrics (Hubáček, Šourek and Železný, 2021))

3.2 Results of Machine Learning Models

3.2.1 Dolores Model Result

Constantinou (2019) implemented the Dolores model on the previous database from 2017 Soccer Prediction Challenge. From Table 3.2, it is clear that Dolores model worked well, comparing with previous participants, Dolores, as Team ACC in Table3.2, obtained the second place and the difference between the first team is very small, but there was no analysis on feature importance.

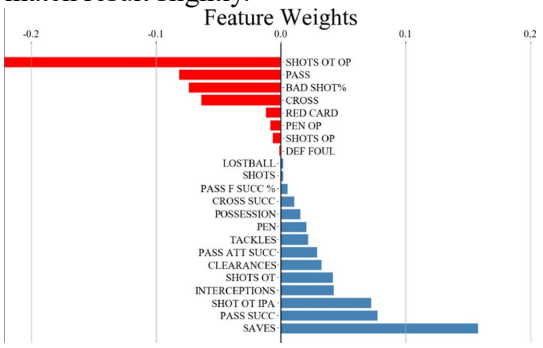
Position	Participant	RPS	Relative performance (%)
1	Team OH	0.206307	100
2	Team ACC	0.208256	99.06
3	Team FK	0.208651	98.88
4	Team HEM	0.217665	94.78
5	Team EB	0.225827	91.36
6	Team LJ[a]	0.231297	89.2
7	Team AT	0.398058	51.83
8	Team LHE	0.451456	45.7
9	Team EDS	0.451456	45.7

(Table 3.2: the results from the international special issue competition Machine Learning for Soccer (Berrar et al. 2017), determined by the RPS function. 'Team ACC' represents Dolores described in this paper (Constantinou, 2019))

3.2.2 LSVC Model Result

Li et al (2020) utilized 1200 games in Chinese Football Super League (CSL) from 2014 to 2018 as data, then they built and trained the LSVC model with 22 extracted features to do the prediction. Li et al (2020) pointed out that the data-driven LSVC model shown an accuracy of 0.83 in prediction, moreover, the on-match performance ranking and predicted team ranking were almost correlated with their actual ranking.

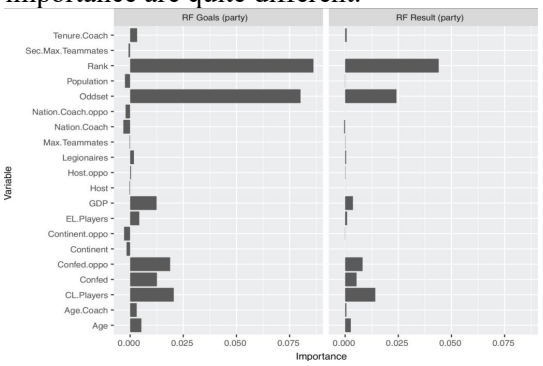
Li et al (2020) also did the analysis of feature weights in LSVC model. From Table 3.3, we could see that the most positive feature for winning in CSL is saves, meanwhile opponent shots on target (SHOT OT OP in Table 3.3) is the most influential factor that leads to lose. Defensive fouls (DEF FOUL in Table 3.3), lost ball control (LOSTBALL in Table 3.3) and total shots (SHOT in Table 3.3) affect match result slightly.



(Table 3.3: feature weights from the LSVC model (Li et al, 2020))

3.2.3 Random Forest Result

Schauberger and Groll (2018) executed random forest on the data of four previous FIFA World Cups (2002, 2006, 2010 and 2014), from Table 3.4, we can see that the main results are quite similar: Rank, Oddset and CL. Players are top 3 most important feature in predicting goals and final result, however, as Schauberger and Groll (2018) said, they use distinct response types with different scaling, so the domains of feature importance are quite different.



(Table 3.4: Variable importance for random forests with goals (left) and match results (right) as response variables for World Cup data from 2002–2014 (Schauberger and Groll, 2018))

3.2.4 Bayesian Network Result

In Table 3.5, pi-football v1 and v2 are two extension models of BN, R1 and R2 are two non-linear regression models, and NM is a basic calculation model. From Table 3.5, we can see for a given league season or time period, BN and its extension models are outperforming than NM, R1, R2, Bookmakers' odd and pi-ratings, because BN and its

extension models have a less average error than others.

M	LS	E	SEM
NM	2000/01 to 2014/15	8.51	±0.3802
R1	2000/01 to 2014/15	7.27	±0.7957
R2	2000/01 to 2014/15	7.3	±0.3301
Bookmakers	2000/01 to 2014/15	5.33	±0.2225
BN	2000/01 to 2014/15	4.98	±0.2498
pi-football v1	2010/11	2.96	±0.4007
BN(a)	2010/11	3.19	±0.5104
pi-football v2	2011/12	4.83	±0.6152
BN(b)	2011/12	5.77	±0.9864
pi-ratings	2007/08 to 2011/12	6.13	±0.4331
BN(c)	2007/08 to 2011/12	5.20	±0.4126

(Table 3.5: Average error *E*, along with standard error of the mean (*SEM)* for each model, over the specified league seasons (*LS*) (Constantinou and Fenton, 2017))

4. DISCUSSION AND CONCLUSION

Results from previous studies illustrate that machine learning models have a better performance than statistical model or rating system in soccer match result prediction, because machine learning models usually use an ensemble of either statistical models or rating systems. But Hubáček, Šourek and Železný (2021) points out that making a direct comparison between machine learning models with statistical models and rating systems would looks like unfair. To catch feature importance in prediction, both statistical models and machine learning models have the ability to distinguish and present the importance of variables in predictions, whereas rating systems could not directly determine whether a variable will influence match result.

However, results from past studies have demonstrated that in order to increase the accuracy of a predictive model, more factors or features are supposed to be imported. Previous predictions usually rely on factors during the match, there is lack of important factors of outside the match. For instance, weather and climatic conditions could affect match result heavily: when it is raining, a slippery ground and a slippery ball will cause more turnovers, and the accuracy of passing from both teams will be decreased; In a cold weather, players require more time for warm-up, teams located in Russia or Canada will normally have the advantage rather than teams from low latitude countries. Due to the lack of objective learning samples, to tunning a model with outside factors is a great challenge in future machine learning development.

In conclusion, machine learning models are more practical and precise than traditional models. In addition, random forest should be chosen as the most power model in machine learning, it is applicable not only in prediction of soccer match, also in all field of OR and data analytics of sports. Also, random forest is a stable algorithm, when a new data point is added, the whole algorithm will not be affected heavily, only one decision tree would be influenced. Furthermore, like Schauberger and Groll (2018) said, even with noise appeared in regression progress, by averaging decision trees, the risk of over-fitting will be reduced.

REFERENCES

[1] Berrar, D., Lopes, P., & Dubitzky, W. (2019). Incorporating domain knowledge in machine learning for soccer outcome prediction. Machine learning, 108(1), 97-126. https://link. springer. com/article/10.1007/s10994-018-5747-8

[2] Constantinou, A. C. (2019). Dolores: a model that predicts football match outcomes from all over the world. Machine Learning, 108(1), 49-75. https://link-springer-com. soton. idm. oclc. org/article/10.1007/s10994-018-5703-7

[3] Constantinou, A., & Fenton, N. (2017). Towards smart-data: Improving predictive accuracy in long-term football team performance. Knowledge-Based Systems, 124, 93-104. https://www-sciencedirect-com. soton. idm. oclc. org/science/article/pii/S0950705117301223?via%3Dihub

[4] Hubáček, O., Šourek, G., & železný, F. (2021). Forty years of score-based soccer match outcome prediction: an experimental review. IMA Journal of Management Mathematics, 33(1), 1-18. https://academic-oup-com. soton. idm. oclc. org/imaman/article/33/1/1/6342916#326280514

[5] Li, Y., Ma, R., Gonçalves, B., Gong, B., Cui, Y., & Shen, Y. (2020). Data-driven team ranking and match performance analysis in Chinese football super league. Chaos, Solitons & Fractals, 141, 110330. https://www-sciencedirect-com. soton. idm. oclc.

org/science/article/pii/S0960077920307256?via%3Dihub
[6] Schauberger, G., & Groll, A. (2018). Predicting matches in international football tournaments with random forests. Statistical Modelling, 18(5-6), 460-482. https://journals-sagepub-com. soton. idm. oclc. org/doi/10.1177/1471082X18799934

Some Thoughts on Integrating the Spirit of Confucian Merchants into the Teaching of Engineering Cost Professional Courses

Yan Xu
Zibo Vocational Institute, Zibo, Shandong, 255300, China

Abstract: This paper aims to comprehensively and deeply explore how the spirit of Confucian merchants can be ingeniously integrated into the curriculum system of the engineering cost major. Through a detailed analysis of the profound philosophy and core values contained in the spirit of Confucian merchants, and in combination with the current setting of the engineering cost major curriculum, a series of specific and feasible practical paths and strategies are proposed. the aim is to cultivate "new engineering Confucian merchants" who possess both solid professional skills in engineering cost and noble professional ethics, and to infuse the engineering industry with the foundation of integrity and humanistic warmth.
Keywords: Confucianism; Project cost; Course teaching

1. ANALYSIS OF THE CONNOTATION OF THE SPIRIT OF CONFUCIAN MERCHANTS

Through systematic literature collation and in-depth theoretical analysis, the core connotation and main characteristics of the Confucian merchant spirit are clarified. This spirit is not only a precious asset jointly cultivated by traditional Confucian merchants and modern Confucian merchants in their long business practices, but also an outstanding example of the mutual reflection of the humanistic spirit of the Chinese nation and commercial civilization. Li Hongliang pointed out in "Confucian Merchants and New Confucian Merchants" that Confucian merchants should possess economic awareness, technological awareness, pioneering awareness, and enterprising awareness, and have fine qualities such as selflessness, integrity and fairness, honesty and trustworthiness, strict self-discipline, and consistency between words and deeds. In "Interpretation of the Meaning of New Confucian Merchants in Modern Market Economy", Miao Zehua proposed that new Confucian merchants should possess profound knowledge and rich experience, and also embody traditional Chinese virtues such as diligent practice, honesty and trustworthiness, frugality and self-restraint, and giving back to society. From the relevant discussions, it can be seen that the academic circle mainly explores from three aspects: the thoughts, character and ability of Confucian merchants, and unanimously holds that ethical thoughts such as "benevolence, righteousness, propriety, wisdom and trustworthiness" remain the core elements of the new Confucian merchant spirit, governing all the elements of the Confucian merchant spirit. Therefore, Confucian merchants in the new era should still uphold the fine qualities of Confucianism and reach the realm of self-cultivation, family management, understanding the truth, honesty, enriching the people and benefiting the world. In the context of the new era, the spirit of Confucian merchants still holds significant guiding significance. For the cultivation of professional talents in engineering cost, the value concepts of the Confucian merchant spirit have a profound enlightening effect. Emphasis should be placed on cultivating students' economic literacy, scientific and technological literacy, innovative consciousness and enterprising spirit, while strengthening their moral cultivation and professional ethics education. Only in this way can we cultivate professional talents in engineering cost who are proficient in professional skills and possess noble virtues, and contribute to the prosperity and development of society.

2. THE NECESSITY OF INTEGRATING CONFUCIAN MERCHANT SPIRIT INTO PROJECT COST ESTIMATION

2.1 Cultivate a versatile talent in engineering cost estimation

In the rapidly changing construction industry, engineering cost professionals need not only solid professional skills, but also profound cultural literacy and moral character. the Confucian merchant spirit, as an important part of traditional Chinese culture, its core values of "benevolence, righteousness, propriety, wisdom and trustworthiness" can provide important spiritual support and moral guidance for engineering cost professionals.

2.2 Promote innovation in professional education

In response to the shortcomings of the current talent cultivation program, integrating the spirit of Confucian merchants into the comprehensive optimization of the curriculum system, teaching mode and practical teaching, and integrating the spirit of Confucian merchants into the talent cultivation program of the engineering cost major is an innovative attempt in the traditional education model. By exploring and practicing new educational concepts and methods, we aim to enhance the pertinence and effectiveness of engineering cost education.

2.3 Inherit and promote the fine traditional Chinese culture

The Confucian merchant spirit is a treasure of Chinese traditional culture. Integrating it into the engineering cost professional education in higher vocational colleges will help to carry forward and promote Chinese fine traditional culture and enhance national confidence and pride. Through the influence of the Confucian merchant spirit, strengthen the sense of social responsibility and professional ethics of engineering cost professionals, and encourage them to always adhere to the core values such as integrity, fairness and responsibility throughout their careers, and jointly promote the healthy development of the construction industry.

3. ANALYSIS OF THE CONVERGENCE POINT BETWEEN CONFUCIAN MERCHANT SPIRIT AND ENGINEERING COST PROFESSIONAL COURSES

Table 1. Convergence points of Confucian Merchant Spirit and Engineering cost professional courses

Cultivate compound engineering cost talents with the integrated development of the "Confucian merchant spirit"				
The spirit of Confucian merchants	Professional courses		Cost estimation skills	
People-oriented	Humanistic knowledge	Ideology, morality and rule of Law	Moral cultivation	Self-discipline ability
Be kind to others		An Outline of MAO Zedong Thought and the theoretical System of Socialism with Chinese Characteristics		Communication skills
The unity of benevolence and wisdom		An Outline of Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era		Synergy capacity
National Righteousness		College Chinese		Dedication ability
Serious and meticulous	Basic knowledge	Architectural engineering drawing	Professional qualities	Cartographic skills
Quality first		Building construction and drawing		Drawing ability
Dedication		Architectural CAD		Practical skills
The pursuit of craftsmanship		Construction engineering surveying		Measurement capability
Take responsibility and act		Construction technology		Practical ability
Compliance and law-abiding		Building Regulations		Abide by the law
Be honest and trustworthy	Core knowledge	Measurement and valuation of construction works	Valuation literacy	Accounting ability
Hardworking and enduring		Bill of quantities and pricing		Budgeting
Teamwork		Installation project measurement and pricing		Precise calculation
Business Insight		Construction Engineering Economics	Economic literacy	Accounting ability
Honesty as the foundation		Prefabricated project cost management		Management ability
The meaning of the relics		Engineering bidding and contract management		Resilient to Risks
Risk awareness		Construction project cost control		Overall planning

Combining the essence of the Confucian merchant spirit and the characteristics of the engineering cost professional course, analyze the convergence points between the two. How to integrate the core elements of the Confucian merchant spirit, namely "benevolence, righteousness, propriety, wisdom and trustworthiness", as well as the new era

Confucian merchant spirit, such as keeping pace with the Times, quality first, connections in all directions, teamwork, hard work, frugality, compliance with the law, economic awareness, scientific and technological awareness, pioneering awareness, public selflessness, integrity and fairness, self-discipline and consistency in words and deeds, integrity, responsibility and innovation Integrate the ideas into the teaching of engineering cost professional courses to enhance students' professional qualities and overall quality.

4. THE PRACTICAL APPROACH OF INTEGRATING CONFUCIAN MERCHANT SPIRIT INTO THE TEACHING OF ENGINEERING COST COURSE

4.1 Tempering the spirit of Confucian merchants in practice

In the teaching of the bill of quantities and pricing course, emphasizing the completeness of the five elements in bill compilation, especially the accurate and clear description of project characteristics, is an important support for avoiding ambiguity in the subsequent process. Here, it is the embodiment of "courtesy" and "trustworthiness". In the practical training course on measurement and valuation of construction projects, when preparing the construction drawing budget, emphasis is placed on conducting green and low-carbon cost-benefit analysis, demonstrating "benevolent" care for the environment. In the course of "Engineering Settlement and Claims", multi-party (construction unit, contractor, supervisor) role-playing is set up to guide students to learn to resolve disputes and seek the best solution through communication, negotiation and mutual understanding (the spirit of "harmony"), rather than direct confrontation. Organize visits to learn in depth about outstanding engineering consulting and construction companies that operate with integrity and take on social responsibilities actively, and listen to entrepreneurs share valuable experiences (the power of role models) on how to adhere to professional ethics in the face of business pressure.

4.2 Lead by example and focus on value guidance

Teachers are the key to talent development. In order to effectively integrate the Confucian merchant spirit, it is necessary to strengthen the construction of the teaching staff and improve the professional quality and moral character of the teachers. the teaching and research capabilities of teachers can be enhanced by organizing them to participate in training, academic exchanges and other activities. At the same time, encourage teachers to actively participate in enterprise practice and social services to enhance their practical experience and sense of social responsibility.

4.3 The evaluation system should be comprehensive and diverse, with emphasis on process evaluation

To comprehensively evaluate the improvement of students' Confucian business spirit and overall quality, a diversified evaluation system should be established. the system will incorporate daily behavioral performance, social practice reports, professional ethics, teamwork ability, innovation ability, etc. into the evaluation system assessment, and adopt a combination of self-evaluation, peer evaluation and teacher evaluation to ensure the comprehensiveness and objectivity of the evaluation. Through the implementation of this system, students' growth dynamics and problems can be understood in a timely manner, providing strong support for subsequent improvement and enhancement.

5. CONCLUSION

Integrating the spirit of Confucian merchants into the curriculum system of engineering cost is a continuous process of exploration and practice. Through the discussion in this article, we hope to provide a new approach and method for engineering cost education and promote the development of engineering cost professionals to a higher level. At the same time, we also hope to explore together how to better integrate China's fine traditional culture into modern vocational education and contribute to the cultivation of engineering cost professionals with noble professional ethics and comprehensive qualities.

REFERENCES

[1] Lu Qinghua. Research on Confucian

Merchant Culture [M]. Beijing: Social Sciences Academic Press, 2018.
[2] Feng Dongmei et al. Application of Role-playing Method in the teaching of Engineering Bidding and Contract Management [J]. Education Modernization, 2019(6).
[3] Zhu Jianjun. Research on the path of integrating Chinese Fine Traditional Culture into Vocational Education [J]. China Vocational and Technical Education, 2021(18).

Analysis of Strategies for Improving the Employment Psychological Quality of College Graduates

Xu Yuqiang
Zibo Polytechnic University, Zibo 255000, Shandong, China

Abstract: Currently, college graduates face opportunities and challenges in the job search process. Improving the psychological quality of college graduates' employment is conducive to helping them achieve high-quality employment, promoting the development of college employment guidance and mental health education, and promoting high-quality development. This article starts with the psychological problem of self-identity confusion that current college students are prone to, and focuses on improving employment autonomy, enhancing employment enthusiasm, and strengthening resilience to setbacks. It proposes three improvement strategies: strengthening employment services, enhancing personalized guidance, and imparting adjustment skills, to help improve the psychological quality of college graduates in employment.

Keywords: College students; Employment psychological resilience; Enhancement strategy

1. INTRODUCTION

General Secretary Xi Jinping emphasized that employment is the most basic livelihood, related to the vital interests of the people, the healthy development of the economy and society, and the long-term stability of the country. the Third Plenum of the 20th Central Committee of the Communist Party of China emphasized the need to improve the mechanism for promoting high-quality and full employment, enhance the public service system for employment, and improve the employment support system for key groups such as college graduates, migrant workers, and retired soldiers. To do a good job in the employment of college graduates, we not only need to help them consolidate their knowledge and skills, but also help them improve their psychological quality. This requires us to combine college mental health work with employment work. Based on clarifying the employment situation of college graduates, we need to analyze problems from a psychological perspective and propose corresponding improvement strategies in combination with the development path of employment guidance work.

2. COLLEGE GRADUATES FACE OPPORTUNITIES AND CHALLENGES IN THEIR JOB SEARCH PROCESS

2.1 Opportunities Faced By College Graduates In the Employment Process

New policies have been introduced to boost employment. On September 25, 2024, the "Opinions of the Central Committee of the Communist Party of China and the State Council on Implementing the Employment Priority Strategy to Promote High Quality and Full Employment" was released, proposing 24 measures around key points such as expanding employment and talent channels, ensuring equal employment rights, and encouraging young people to broaden their employment choices, engage in employment and entrepreneurship in key areas, key industries, urban and rural grassroots, and small and medium-sized enterprises, and provide policy support to safeguard the employment of college graduates. [1]

The development of new business models calls for talents. the new employment pattern is a work pattern that appears with the application of Internet technology and the development of digital economy. It has great employment absorption capacity and is one of the channels for flexible employment and innovation and entrepreneurship of college graduates.

The new lifestyle provides convenience. In

recent years, there have been significant changes in the way society operates and people's lifestyles. the new ways of digitization, technology, and remote technology have provided convenience for the employment of college graduates.

2.2 Challenges Faced By College Graduates In the Employment Process

The rapid development of society has led to an increase in uncertain factors during the job search process for graduates. For market-oriented positions, the job demands and threshold conditions of current enterprise entities are constantly changing, and graduates need to make more solid employment preparations.

The continuous upgrading of digital technology has put forward new requirements for the knowledge and skills of college graduates. With the popularization of digital technology, college graduates need to introduce digital thinking and improve their ability to use digital tools on the basis of their existing knowledge and skills, in order to cope with the challenges of new work environments, job content, and job targets.

The explosion of online information requires college graduates to have the ability to distinguish right from wrong and think independently. Massive job search information needs to be processed, identified, and screened to prevent falling into employment scams.

3. ANALYSIS OF PSYCHOLOGICAL PROBLEMS IN EMPLOYMENT OF CURRENT COLLEGE GRADUATES

3.1 Following the Trend And Conformity - Early Closure Of Self-Identity

Faced with fierce competition and a desire for stability, some students have developed a sense of self-identity and lack the courage and motivation to explore their own diversity of development. They blindly copy their career plans in an attempt to replicate the path of others' success. Some blindly submit resumes, following a set of so-called winning codes, mechanically rigid, leading to an increase in interview failure rates and forming a vicious cycle; Some mechanical dogmas are burdened by empiricism during the interview process and lack self-expression. In short, once self-identity premature closure occurs, many college graduates are prone to encounter setbacks in the job search process of blindly copying others.

3.2 Slow Employment And Slow Employment - Delayed Self-Identity

In order to avoid risks, some college graduates choose to slow down and delay employment, using the reason of taking the civil service examination and postgraduate entrance examination to delay their job search actions. In essence, they are afraid of failure and dare not put it into practice, which is a typical case of self-identity delay. the main manifestation of students who experience early closure of self-identity is mainly focused on preparing for civil service exams and postgraduate entrance exams. They sacrifice the important trial and error process of internships in order to prepare for the exam, and even prepare for a war without success, ranking employment at the end or using it as a transfer option to quickly return to the comfort zone of exam preparation. This is a typical manifestation of delayed self-identity, using exam preparation to conceal the fact that they dare not make employment attempts. [2]

3.3 Buddhist Style, Lying Flat And Gnawing On the Elderly - Diffusion Of Self-Identity

Some graduates have experienced a dispersion of self-identity, facing numerous choices without weighing, thinking, choosing, or taking action. They are negative and pessimistic, promoting a Buddhist style, using lying flat as a slogan, and relying on the elderly as a way out. Some of these students have experienced job and exam failures and become disheartened, afraid to continue investing time and energy. They are prone to psychological problems such as anxiety and depression, which require our attention. Some students witness others' failures and are brainwashed by the culture of lying flat on the internet or negative social information, believing that striving is meaningless and that efforts will ultimately be in vain, and they dare not make attempts. Some students come from affluent families and indulge in hedonism, believing that they don't need to struggle and can rely on their parents to obtain good living conditions. In short, there is a risk of losing the fighting spirit among students with self-identity dispersion.

4. ANALYSIS OF STRATEGIES FOR IMPROVING THE EMPLOYMENT PSYCHOLOGICAL QUALITY OF COLLEGE GRADUATES

4.1 Thoroughly Understand the Policies And Do a Good Job Of Preaching, Giving Graduates a "Reassurance Pill"

To enhance the employment psychological quality of college graduates, it is necessary for college employment workers to thoroughly understand the policies and carry out propaganda to boost their employment confidence.

College employment workers need to understand the new policies from the perspective of students with problems, rather than simply reposting and distributing them to students. Taking the use of the National College Student Employment Service Platform as an example, we need to truly make good use of the resources on it, familiarize ourselves with the operation of the system, in order to help students trust the platform, use the platform, understand policies, and boost confidence.

College employment workers need to carry out personalized policy lectures based on the different needs of students. the postgraduate entrance examination, civil service examination, enlistment, and employment all have complete and systematic policy support, especially for employment. There are significant differences in employment assistance policies in different provinces and regions, and the focus on professional disciplines also varies. We need to fully understand the policies.

4.2 Reasonably Plan Personalized Guidance And Draw a "Roadmap" For Graduates

To enhance the employment psychological quality of college graduates, it is necessary for college employment workers to guide them to make reasonable plans for graduation and embark on a stable path of job seeking.

College employment workers should guide students to have a correct understanding of themselves. Guide students to integrate their subjective and objective selves, draw their own professional self portraits, and create and submit resumes in a targeted and targeted manner during the job search process. [3]

College employment workers should guide students to learn how to plan reasonably. Students should be encouraged to make early career plans based on comprehensive consideration of their own situation and policy guidance. On this basis, encourage students to refuse procrastination, overcome timidity, seize the golden period of job hunting, be brave enough to put their plans into practice, use part-time jobs, internships, innovation and entrepreneurship projects and other ways to engage with society and the industry, discover their own shortcomings, and make timely adjustments.

4.3 Do a Good Job In Guiding And Teaching People How To Fish, And Provide Graduates With a "Shot In the Arm"

Improving the employment psychological quality of college graduates requires college employment workers to guide graduates to learn self adjustment and cope with setbacks and difficulties.

College employment workers should stand firm on the podium and attach importance to theoretical guidance. In line with the concept of cultivating students through ideological and political education, we introduce elements of employment psychology education into daily mental health education, employment guidance, and political theory courses, and strengthen resilience education.

College employment workers should pay attention to the role of psychological counseling. Encourage students to spontaneously seek advice and help when encountering problems, establish a three-level counseling system of homeroom teacher counselor psychological counselor, and intervene based on the severity of the visitor's problem. On the basis of psychological screening for new students, a special screening for employment psychological problems will be carried out for graduates in the first semester of their junior year and after the graduate entrance examination. When receiving visitors, pay attention to listening and tolerance, protect privacy, and track the effectiveness of the conversation afterwards.

College employment workers should pay attention to leveraging the role of peer group mutual assistance among students. Establish a mental health committee within the student class and a mental health observer within the dormitory to promptly provide feedback on

any issues identified. We attach great importance to the construction of students' overall academic and accommodation atmosphere, and provide hardware facilities for different groups such as postgraduate entrance examination and employment. At the same time, we pay attention to the overall mental state of students and adopt certain incentive measures when necessary, using the overall state to drive individuals. Encourage students to form listening groups in pairs and use the power of peer groups to help individuals alleviate negative emotions such as anxiety and frustration.

5. CONCLUSION

Employment is connected to the lights of thousands of households on one end and to social development on the other. the employment of college graduates is a hot topic of social concern and a focal point of national employment policies. To enhance the employment psychological quality of efficient graduates, it is not only necessary for university employment workers to guide them in policies, planning, and skills, but also to start from the entire process of student cultivation in the perspective of ideological and political education, consolidate knowledge and skills, strengthen practical links, and temper psychological quality. It is believed that driven by the employment priority policy, with the joint efforts of college teachers and students and all sectors of society, more and more college students can successfully find their favorite jobs and contribute to the construction of Chinese path to modernization.

REFERENCES

[1] Yang Xinping Enhancing Employment Policies for College Students: Realistic Logic, Challenges, and Strategies. Journal of the Jinan Municipal Party School of the Communist Party of China, 2023(01):51-53.

[2] Liu Lixuan Analysis of the Employment Status and Countermeasures of College Graduates in the Post Pandemic Era, Sichuan Fujian Textile, 2023(04):74-76+83.

[3] Weng Tiehui Promote the implementation and effectiveness of employment policies, and make every effort to do a good job in various aspects of employment for college graduates Chinese College Student Employment, 2023(06):3-6.

The In-depth Integration of Professional Spirit Cultivation and Higher Vocational Nursing Talent Training ——Practice and Exploration Based on the "Four Modernizations" Model

Zhao Xing
Zibo Vocational Institute, Zibo, Shandong, 255314, China

Abstract: Guided by the spirit of vocational education reform issued by the Ministry of Education, the School of Nursing at Zibo Vocational Institute has innovatively constructed a professional spirit cultivation model featuring "systematization, three-dimensionality, specialization, and diversification". Through the collaborative mechanism of education via environment, practice, and evaluation, the cultivation of professional spirit is integrated throughout the entire process of talent training. Practices show that this model has significantly improved the professional literacy and job competence of nursing students, providing a referenceable path for higher vocational education to implement the fundamental task of fostering virtue through education.

Keywords: Professional spirit; Higher vocational nursing; Four Modernizations Model; Talent training

1. RESEARCH BACKGROUND AND OBJECTIVES

The Several Opinions on Deepening the Reform of Vocational Education Teaching and Comprehensively Improving the Quality of Talent Training issued by the Ministry of Education explicitly emphasizes that vocational education should "adhere to people-oriented education with moral cultivation as the priority, " deeply integrating professional skill training and professional spirit cultivation. As a discipline characterized by strong practicality and prominent humanistic attributes, nursing talent cultivation not only requires strengthening professional skills but also cultivating professional spirits such as humanistic care, dedication, communication, and collaboration. However, there is a common tendency in current higher vocational nursing education to "prioritize skill training over quality cultivation, " leading to issues such as insufficient professional identity, weak communication skills, and inadequate stress resistance among some graduates. Against this backdrop, the School of Nursing at Zibo Vocational College has adopted the implementation path of "systematization, three-dimensionalization, specialization, and diversification" (referred to as the "Four Modernizations") to establish a normalized professional spirit cultivation mechanism. the goal is to address the practical problem of "overemphasizing skills and undervaluing qualities" in vocational education and cultivate high-quality nursing professionals with both ethical integrity and professional competence.

2. CONSTRUCTION AND IMPLEMENTATION PATH OF THE "FOUR MODERNIZATIONS" MODEL

2.1 Systematized Top-Level Design: Building an Integrated Training Framework

2.1.1 Integration of Professional Spirit into Talent Training Programs

Through investigations of medical service institutions such as Peking University International Hospital and Shanghai Changhai Hospital, the talent training objectives for nursing professionals were clarified:

cultivating compound nursing talents with humanistic care concepts, dedicated professional qualities, civilized behavioral norms, communication and collaboration skills, psychological stress resistance, and physical and mental health. the goals of professional spirit cultivation were refined into the curriculum system and teaching links of the three-year junior college talent training program, forming a trinity training framework of "knowledge-skill-quality".

2.1.2 Ideological and Political Integration Reform of the Curriculum System

A five-layer progressive curriculum system of "public basic courses+professional basic courses+professional courses+practical courses+post practice" was constructed, integrating professional spirit cultivation into the objectives of each course. For example:

Ideological and political courses and career guidance courses serve as the main channels for professional spirit cultivation, focusing on the shaping of professional ethics and values;

Professional theory courses (e. g., Fundamentals of Nursing) infiltrate professional ethics through case analysis (e. g., discussions on malignant doctor-patient injury incidents);

Practical training courses use scenario simulations (e. g., simulated emergency rescue scenarios) to strengthen the professional awareness of "reverence for life and standardized operation".

2.1.3 Scenario-Based Innovation in Classroom Teaching

The teaching model of "ideological and political education in courses+clinical scenarios" was implemented. For instance, real anti-epidemic cases were introduced into Medical Nursing courses, and students were guided to understand the professional connotation of "dedication and life protection" through role-playing, group discussions, and other methods. According to teaching feedback statistics, scenario simulation teaching increased students' professional identity by 42% (based on questionnaire data from 2023-level students).

2.2 Three-Dimensional Environment Creation: Building a Multi-Dimensional Education Field

2.2.1 Strengthening the Construction of "Double-Qualified" Faculty.

Through the "external recruitment and internal training" mechanism, a high-level teaching staff was established: - 8 clinical experts were introduced as visiting professors to regularly conduct "frontline clinical experience sharing sessions"; - 15 professional teachers were dispatched to advanced training at Peking University International Hospital, Shanghai Changhai Hospital, etc., with the requirement to complete the compilation of "Clinical Professional Spirit Case Collections" to feed back into classroom teaching.

2.2. 2 Workplace Reconstruction of the Training Center.

the nursing training center was built according to the standards of tertiary first-class hospitals: - Simulated wards and emergency rooms were laid out in reference to real hospital environments, equipped with standardized nursing operation procedure boards; - Students must strictly follow the "check-communication-operation-record" protocol during training, with a "training error deduction system" to strengthen professional discipline awareness. Survey data showed that the simulated environment of the training center increased the compliance rate of students' operational norms from 78% to 91% (2022-2024 comparative data).

2.2.3 Infiltrative Cultivation of Campus Culture.

Physical Environment: Professional spirit culture walls were created to display the deeds of Florence Nightingale and anti-epidemic stories of outstanding graduates; - **Institutional Environment**: Hooding and oath-taking ceremonies were implemented before student internships, with professional spirit incorporated into the evaluation indicators for Party and League member development and merit-based evaluations; - Cyber Environment: Relying on the "Zi Xiao Hu" new media platform, columns such as "Nursing Pioneers" were established, publishing more than 200 professional spirit-themed tweets with over 100, 000 views; Activity Brands: A series of "5.12 Nurses' Day" events were created, including more than 10 activities such as nursing skill competitions, anatomical painting competitions, and internship story sharing sessions, with an average annual participation of 2, 000 students, forming an educational

atmosphere of "promoting practice through competitions and nurturing people through culture".

2.3 Specialized Internship: Strengthening Clinical Practice Education

2.3.1 "Dual-Element" Cultivation Mechanism via School-Enterprise Collaboration

Deep partnerships were established with institutions such as the Air Force General Hospital of the Chinese People's Liberation Army and the Southern Theater Command General Hospital, positioning post practice as the "second classroom" for professional spirit cultivation. Hospital instructors deliver the "first lesson in professional spirit teaching, " guiding students to understand the professional connotations of "respecting patients and assuming responsibility" through demonstration operations and case discussions (e. g., analysis of typical doctor-patient communication scenarios).

2.3.2 Innovative "Narrative Nursing" in Process Management

A dual-track assessment mechanism between hospitals and schools was established, requiring students to complete "internship narrative logs" recording professional spirit-related clinical incidents (e. g., patient gratitude scenarios, reflections on operational errors). For typical cases (e. g., severe doctor-assault incidents), intercollegiate online seminars are organized to cultivate students' ability to analyze problems from an ethical perspective. Data shows that students participating in narrative nursing practice achieved a 28% improvement in communication skill scores compared to traditional internship groups (2023 comparative experiment data).

2.4 Diversified Evaluation System

A full-cycle quality monitoring system was established, constructing a "three-dimension, five-subject" evaluation model:

Evaluation Dimensions:

Knowledge level: Focuses on theoretical cognition of professional spirit (e. g., nursing ethics examinations);

Skill level: Highlights operational standardization and humanistic care performance (e. g., standardized assessments in training centers);

Quality level: Examines comprehensive qualities such as professional attitude and teamwork (e. g., satisfaction surveys from internship hospitals).

Evaluation Subjects: Include teachers, hospital managers, medical staff, peers, self-evaluations, and patients (e. g., satisfaction questionnaires from outpatient patients).

Evaluation Methods: Integrates quantitative evaluation (e. g., pass rates of nursing license exams, employment rates) with qualitative evaluation (e. g., narrative log analysis, in-depth interviews), generating an Annual Report on Professional Spirit Cultivation Quality to dynamically adjust training strategies.

3. IMPLEMENTATION EFFECTS AND SOCIAL RESPONSES

3.1 Significant Improvement in Talent Training Quality

In the past three years, the School of Nursing has trained 1, 393 junior college graduates, with an employment rate of over 97% and a nursing license examination pass rate of over 97%, far exceeding the national average (approximately 85% in 2023). Third-party surveys show that employers' satisfaction with graduates' professional literacy has exceeded 93% for three consecutive years, with key evaluations highlighting "strong service awareness, " "excellent stress resistance, " and "good teamwork. " the school has fostered a large number of outstanding students representing professional spirit cultivation benchmarks, including "anti-epidemic pioneers" Meng Liwei and Jia Kelin, "courageous and righteous Zibo good nurse" Fu Menglu, national excellent volunteers for the Western China Volunteer Service Program Zhang Di and Liu Xinyue, and current student Tian Jiahao, who performed courageous rescues.

3.2 Continuous Expansion of Social Influence

The professional spirit cultivation model of the School of Nursing has been reported more than 20 times by media such as Qilu Evening News, forming the brand effect of "Zibo Vocational Institute Nursing. " More than 20 vocational colleges inside and outside the province have visited for research and learning.

4. CONCLUSIONS AND PROSPECTS

Through the collaborative effects of systematized design, three-dimensional environment, specialized practice, and diversified evaluation, the "Four Modernizations" model of Zibo Vocational Institute has achieved a transformation in professional spirit cultivation from "fragmented infiltration" to "systematic integration. " In the future, efforts can be further made to deepen the integration of "posts, courses, competitions, and certificates, " align professional spirit evaluation with nursing industry standards, and leverage artificial intelligence technologies (such as virtual nursing simulation systems) to expand educational scenarios, providing more innovative solutions for nursing talent training in the new era

REFERENCES

[1] Ministry of Education. *Several Opinions on Deepening the Reform of Vocational Education Teaching and Comprehensively Improving the Quality of Talent Training* [Z]. 2015.

[2] Chinese Nursing Association. *Guidelines for Cultivating Professional Spirit in Nursing (Trial)*[S]. Beijing: People's Medical Publishing House, 2024.

Research on the Integration of the Concept of the New Era's Rule of Law into the Ideological and Political Education in Colleges and Universities

Liling Zhu
Zibo Vocational Institute, Zibo, Shandong, China

Abstract: The rule of law in higher education institutions is an important part of promoting the construction of a country ruled by law in China. It is an objective requirement for the transformation of China's higher education, and also the only way for the high-quality development of colleges and universities.
Keywords: The Belt and Road; Vocational English; Teaching strategy

1. INTRODUCTION

Ideological and political education in colleges and universities is an important way to train socialist builders and successors, and the rule of law culture, as an important part of Socialism with Chinese characteristics's cause, should be integrated into the ideological and political education of college students. the integration of rule of law culture can help college students better understand and support the country's rule of law construction, cultivate their awareness and accomplishment of rule of law, improve their legal quality and make them better contribute to the socialist cause. The education of the rule of law refers to an activity to cultivate and develop citizens' awareness of the rule of law and guide their behavior with the awareness of the rule of law through the publicity and education of citizens' purposeful, planned and organized strategy of "ruling the country according to law". The importance of rule of law education in the practice of ideological and political education in the new era is increasingly prominent, and they influence and promote each other. Therefore, it is imperative to integrate rule of law education into ideological and political education in colleges and universities.

2. THE NECESSITY OF INTEGRATING RULE OF LAW EDUCATION INTO IDEOLOGICAL AND POLITICAL EDUCATION IN COLLEGES AND UNIVERSITIES

The culture of the rule of law is an important part of Socialism with Chinese characteristics's cause, governing the country according to law, respecting the law, safeguarding fairness and justice, carrying forward the spirit of the rule of law and promoting social fairness and harmony. In the context of the new era, the rule of law in China requiresthat rule of law education should complement ideological and politicaleducation and play its due role in comprehensively promoting the rule of law [1]. The core of the culture of the rule of law is the concept of the rule of law, that is, respecting the law, obeying the law and acting according to the law. the integration of the rule of law culture can help college students to establish a correct concept of the rule of law, improve their rule of law literacy, cultivate their awareness of the rule of law, and make them better understand and support the country's rule of law construction.

After leaving the campus, college students will go to all walks of life and become builders of a modern socialist country. They should not only have the quality of "morality", but also meet the requirements of promoting the construction of China ruled by law in the new era and have the quality of "law". The rule of law education and ideological and political education in colleges and universities are consistent in many aspects. Integrating the rule of law education into ideological and

political education will help them grow into talents with both morality and law. As builders and successors of socialism, college students will devote themselves to the construction of China ruled by law in the future. They must have the literacy of "law" as well as "morality", and the literacy of "morality" and "law" will continue to improve, ultimately serving the construction of a socialist modern country.

Colleges and universities are the cradle of teaching and educating people in the new era, and ideological and political courses are an important channel for college students to learn the content of governing the country according to law. Integrating the idea of governance into ideological and political classroom teaching can help college students systematically learn and master Socialism with Chinese characteristics's theory of the rule of law, effectively enhance their ability to analyze and solve problems by using the thinking of the rule of law, and become an important new force in the construction of China ruled by law. Ideological and political education and rule of law education can help college students to sublimate their thoughts, abide by social morality, and at the same time abide by the law and discipline, and not participate in illegal and criminal acts.

3. THE PRESENT SITUATION OF THE INTEGRATION OF RULE OF LAW EDUCATION INTO IDEOLOGICAL AND POLITICAL EDUCATION IN COLLEGES AND UNIVERSITIES

As an important base for cultivating high-quality talents in China, colleges and universities play an important role in promoting the construction of a socialist society ruled by law in China. the integration of RLE into IPC is of great significance, as it helps to shape students'legal thinking, enhance their senseof responsibility, and promote the implementation of the comprehensive strategy of governing the country by law [2]. At present, the way of rule of law education in ideological and political education in colleges and universities is often a vertical education mode in which teachers teach and students listen, which is related to the fact that rule of law education in ideological and political education in colleges and universities in China is in its infancy. An important way to promote the innovation of ideological and political education in colleges and universities. It is a realistic requirement for colleges and universities to implement the Party's educational policy to implement the fundamental task of cultivating people by virtue. Integrating the concept of rule of law into ideological and political education in colleges and universities is an important way to promote the innovation of ideological and political education.

At present, colleges and universities have made some progress in the development of rule of law education, paying more attention to the publicity and cultivation of the concept of rule of law, but there are also corresponding shortcomings. There are still some deficiencies in the current situation of rule of law education in colleges and universities in China, and some colleges and universities still pay insufficient attention to the rule of law education for students, and lack the initiative of rule of law education in the process of ideological and political education. At present, there is a widespread problem that the education of the rule of law is not paid enough attention to in colleges and universities, and the education of the rule of law for students has not been carried out in depth and is only superficial. In the process of carrying out rule of law education in colleges and universities, there is also a phenomenon that the level of teachers is uneven, and there is a lack of corresponding professional teachers to carry out rule of law education.

At present, in the process of carrying out rule of law education in colleges and universities, there is a widespread phenomenon that the teaching quality of rule of law education for students is not paid enough attention, and the degree of development and innovation of rule of law education is not enough, which largely leads to the poor quality of rule of law education, and it is difficult for students to improve their rule of law literacy in the process of receiving rule of law education. the way of carrying out rule of law education in colleges and universities is relatively simple, and the effect of integrating rule of law education into ideological and political education is not obvious, which is a shortcoming for carrying out collaborative education between rule of law education and

ideological and political education.

4. THE WAY OF INTEGRATING LEGAL EDUCATION INTO IDEOLOGICAL AND POLITICAL EDUCATION IN COLLEGES AND UNIVERSITIES

Optimize the educational environment of the rule of law through the construction of campus environment. Campus environment will subtly affect students' thoughts and actions, and it is also an important factor affecting the teaching effect of ideological and political courses. We should pay full attention to the educational effect of "educating people with culture" created by the rule of law atmosphere on campus, post the rule of law ideas, especially new theories, new viewpoints and new conclusions in main places and publicity columns, and at the same time, let students participate extensively and think deeply through campus theme group day activities and theme education, infiltrate students' hearts in a subtle way, and enhance their cognition of theoretical knowledge.

Enrich the contents of education and teaching and explore innovative teaching methods. To comprehensively promote the rule of law, the rule of law theory is an important guide. Colleges and universities should be guided by the theory of rule of law and attach importance to the infiltration and integration of the content of rule of law education and ideological and political education. On the one hand, integrate the teaching content of rule of law education and ideological and political education. First, increase the proportion of rule of law education in the existing ideological and political courses such as "Ideology and Morality and Rule of Law" to ensure that rule of law education is an important part of ideological and political education. On the other hand, explore and innovate the teaching methods of rule of law, and pay attention to the organic combination of theory and practice. First, actively carry out mock trial activities to lead college students to get in touch with real legal cases and get familiar with legal procedures. In addition, publicity should be carried out on legal common sense, illegal cases and legal interpretation of typical events with great social influence, so as to urge students to further recognize the importance of developing legal thinking [3]. Create a new team of educators, appropriately introduce talents with legal background to carry out professional work, exchange needed goods with ideological and political education teachers and counselors, promote each other's promotion, learn to be upright in educational activities, and influence students with actions. Colleges and universities should focus on the effect evaluation and feedback mechanism of rule of law education to improve the effectiveness of integrating the concept of rule of law into ideological and political education. We should conscientiously carry out the education of practicing the rule of law in system formulation, guide students to organize and formulate grade rules, class rules, dormitory rules, etc. by themselves, so that students can experience the whole process of establishing rules and regulations, realize the importance of rules and regulations, and learn to use the law to create a stable and harmonious social order. On the one hand, carry out the evaluation of the effect of rule of law education to ensure the effectiveness of rule of law education. On the other hand, explore the establishment of a feedback mechanism for evaluating the effect of rule of law education to ensure the steady improvement of the quality of rule of law education. Colleges and universities can regularly obtain data on the development of rule of law education through diversified channels, build a scientific and reasonable index system to evaluate the effect of rule of law education, and feedback the evaluation results to teachers in time.

REFERENCES

[1] Li Suyan, The Mutual Promotion of Rule-of-Law Education and Ideological and PoliticalEducation in the New Era [J]. Legal education research, 2019, (2):317-330.

[2] Wang Dong, the Logical Paths and Implementation Approaches of Integrating Rule of Law Education into Ideological and Political Courses [J]. Research on educational science, 2024, (09):19-26.

[3] Xu Xiaoliang. Probe into the path of integrating rule of law education into ideological and political education in colleges and universities [J]. Public Relations World, 2024, (23):145-147.

Application of Beidou High-Precision Positioning in Path Planning and Control of Intelligent Vehicles

Kai Liu
Zibo Vocational Institute, Zibo, Shandong, 255314, China

Abstract: With the rapid advancement of intelligent vehicle technology, high-precision positioning plays a crucial role in path planning and control. This study explores the application of Beidou high-precision positioning technology in intelligent vehicles, specifically analyzing its effects and advantages in path planning and vehicle control. A combination of literature review and model simulation was employed to first analyze existing positioning technologies for intelligent vehicles, focusing on the technical characteristics and applicability of the Beidou system. A path planning model based on Beidou high-precision positioning was established, and simulation experiments were conducted to evaluate and compare the navigation accuracy and control response of different positioning systems in complex environments. Results indicate that the Beidou high-precision positioning system demonstrates superior applicability and effectiveness in urban settings, improving path planning accuracy by 15% and reducing vehicle control error by 20% compared to other systems. This research provides a theoretical basis and technical support for the future development of intelligent and automated vehicles. Looking forward, the Beidou system is poised to become a crucial technology in advancing intelligent transportation.

Keywords: Beidou high-precision positioning; intelligent vehicles; path planning; control; technical application

1. INTRODUCTION

1.1 Review of Domestic and International Research Status

In the field of intelligent vehicles, positioning technology is fundamental to path planning and control. Research on intelligent vehicle positioning technologies began earlier in foreign countries, particularly in the U. S., which has conducted extensive studies on path planning and control utilizing the Global Positioning System (GPS). Early studies focused on utilizing GPS data alongside traditional path planning algorithms such as Dijkstra's and A* algorithms for navigation. As technology evolved, there has been a shift towards integrating high-precision positioning with intelligent vehicle control strategies to enhance driving stability and safety.

Research in China, while starting later, has made significant strides with the ongoing development of the Beidou satellite navigation system. As an independently developed satellite navigation system, Beidou offers high accuracy, reliability, and compatibility, supporting the growth of intelligent vehicles. Numerous domestic research institutions and enterprises are exploring the application of Beidou high-precision positioning in intelligent vehicles, improving traditional algorithms for enhanced efficiency and accuracy, and developing control strategies for more precise vehicle operations such as adaptive cruise control and automated parking. Nonetheless, challenges remain in maintaining positioning accuracy in complex environments, optimizing multi-sensor fusion techniques, and achieving deep collaboration with intelligent transportation systems.

1.2 Research Objectives and Significance

The objective of this study is to delve into the specific applications of Beidou high-precision positioning technology in the path planning and control of intelligent vehicles, addressing issues such as insufficient positioning accuracy in complex environments, suboptimal path planning, and imprecise

control strategies. By integrating Beidou high-precision positioning with existing technologies, more efficient and accurate path planning models and control strategies can be established, enhancing overall vehicle performance.

From a practical perspective, this research is significant as effective path planning can alleviate traffic congestion, reduce energy consumption, and minimize environmental pollution. Precise control strategies enhance driving safety and reduce accident rates. Furthermore, promoting the application of Beidou high-precision positioning in intelligent vehicles supports innovation and development within China's intelligent vehicle industry, thereby strengthening global competitiveness. This aligns with national strategic goals for smart transportation and contributes to social and economic advancement.

2. OVERVIEW OF BEIDOU HIGH-PRECISION POSITIONING TECHNOLOGY

2.1 Development and Characteristics of the Beidou System

The Beidou satellite navigation system is a crucial national infrastructure developed for security and socio-economic needs, providing all-weather, all-time, and high-precision positioning, navigation, and timing services globally. Its development followed a "three-step" strategy: the Beidou-1 system established regional active positioning services (2000), the Beidou-2 system achieved regional passive positioning (2007), and the Beidou-3 system completed global passive positioning (2020).

Key features of the Beidou system include high precision (2.5-5 meters globally, 1-2 meters in the Asia-Pacific), reliability (robust against interference and capable of functioning in adverse conditions), and strong compatibility (interoperable with other global navigation systems and communication devices). Additionally, its unique short message communication capability allows information transmission in areas without mobile signals, making it vital for applications in remote areas.

2.2 Principles of High-Precision Positioning

Beidou high-precision positioning relies on satellite signal reception and processing to determine the receiver's location through distance measurements from satellites. This involves satellite orbit parameters, signal propagation time measurement, and error correction.

The measurement of signal propagation time is critical, as the time difference between signal transmission and reception determines the pseudo-range. Various errors such as satellite and receiver clock errors and atmospheric delays require correction for accurate positioning. Differential positioning techniques, including single-station, regional, and wide-area methods, enhance accuracy by utilizing base stations to provide real-time error correction.

In intelligent vehicle applications, onboard receivers process signals to provide high-precision positional, velocity, and temporal data, supporting effective path planning and control.

3. PATH PLANNING AND CONTROL TECHNOLOGY FOR INTELLIGENT VEHICLES

3.1 Research on Path Planning Algorithms

Path planning algorithms for intelligent vehicles aim to identify optimal routes based on the vehicle's current position, destination, and surrounding environmental data. Common algorithms fall into traditional and intelligent categories.

Traditional algorithms, such as Dijkstra's, identify the shortest path by traversing all nodes but struggle with increased complexity. A* enhances efficiency through heuristic functions, but its performance depends on accurate heuristic design. Intelligent algorithms, including genetic and particle swarm optimization, excel in complex environments but involve high computational complexity.

Recent advancements in machine learning and deep learning have led to the emergence of data-driven path planning algorithms. These leverage historical driving data to adapt to dynamic traffic conditions. Integrating Beidou high-precision positioning with real-time traffic data allows for dynamic path adjustments, enhancing efficiency in congested scenarios.

3.2 Current Status of Vehicle Control

Strategies

Intelligent vehicle control strategies encompass longitudinal and lateral control for precise speed and direction management. Longitudinal control includes cruise control and adaptive cruise control (ACC), which adjusts speed based on real-time monitoring. Integration with Beidou positioning enhances control over vehicle acceleration and deceleration based on road gradients and curvature.

Lateral control involves steering management to follow planned paths, employing electric power steering (EPS) or steer-by-wire systems for precision. Coupled with Beidou data, control strategies can adjust steering angles based on real-time path deviations.

Braking control systems, such as emergency braking, utilize Beidou positioning to assess collision risks and execute timely braking actions. However, current strategies face limitations in complex traffic scenarios, prompting ongoing research for improved robustness and collaboration among vehicles.

4. APPLICATION OF BEIDOU POSITIONING IN INTELLIGENT VEHICLES

4.1 Environmental Analysis of Applications

The application environment for intelligent vehicles is complex and varied, encompassing urban roads, highways, and rural roads, as well as various weather conditions such as sunny, rainy, and foggy days. These environmental factors can significantly affect the effectiveness of Beidou's high-precision positioning.

In urban settings, dense buildings can create multipath effects, where satellite signals are reflected and refracted, leading to longer signal paths and increased measurement errors. Furthermore, electromagnetic interference from sources like communication base stations and high-voltage lines may disrupt Beidou signal reception, impacting positioning accuracy. On highways, the high speed of vehicles demands real-time positioning with stable and frequent data from the Beidou system for effective path planning and control. Rural roads may present challenges such as signal blockage from mountainous terrain or dense forests, reducing satellite visibility and positioning precision.

Different weather conditions also influence Beidou positioning. For example, rain and fog can increase water vapor content in the atmosphere, resulting in greater ionospheric and tropospheric delay errors. In extreme weather, such as heavy rain or snow, signal interruptions may occur, affecting the vehicle's normal operation.

To address these challenges, several measures can be implemented. Hardware optimizations, such as enhancing the antenna design of onboard receivers to improve resistance to multipath and interference, can be beneficial. On the software side, advanced signal processing algorithms and data fusion techniques can be employed, integrating inertial navigation and visual navigation to calibrate and supplement Beidou data, enhancing reliability and accuracy. Additionally, developing environmental perception models can enable real-time monitoring of surrounding conditions, allowing for dynamic adjustments to positioning and control strategies to ensure stable operation across diverse environments.

4.2 Model Establishment and Design

4.2.1 Path Planning Model

Using the precise location and environmental data provided by Beidou high-precision positioning, a path planning model for intelligent vehicles can be established. This model aims to minimize travel time, distance, and energy consumption while adhering to constraints such as road speed limits, traffic regulations, and real-time traffic conditions.

First, the road network can be abstracted as a graph structure, where nodes represent intersections or critical points, and edges symbolize connecting road segments with weights determined by factors like length, speed limits, and traffic volume. Using the Beidou positioning system, the vehicle's real-time position and destination can identify the start and end nodes. An improved A* algorithm or intelligent algorithms can then search for the optimal path within this graph, dynamically adjusting edge weights based on real-time traffic incidents and flow data.

For instance, if the Beidou system detects an accident ahead, the path planning model will set the weight of that road segment to infinity, avoiding it and recalculating a new route. Moreover, by incorporating Beidou data on

road gradient and curvature, the model can consider the vehicle's dynamic performance and safety, selecting routes that are more suitable for driving.

4.2.2 Control Model

The design of the control model aims to achieve precise longitudinal and lateral control of intelligent vehicles, ensuring safe and stable adherence to the planned path.

In the longitudinal control model, speed and acceleration are the control variables. By integrating road information (such as gradients and curve radii) and the positions of surrounding vehicles, advanced control algorithms like Model Predictive Control (MPC) can formulate appropriate throttle and braking strategies. For example, when approaching an incline, the model can preemptively increase throttle to maintain speed, and adjust braking on downhill segments to prevent overspeed.

The lateral control model uses the steering angle as a control variable. Based on the real-time position provided by Beidou and the deviation from the target path, algorithms like PID control and sliding mode control can calculate the required steering angle, implemented through electric power steering or steer-by-wire systems. To enhance lateral control accuracy, information from visual sensors regarding road markings can correct deviations in Beidou positioning, ensuring precise path tracking under complex road conditions. Additionally, integrating Beidou positioning with the vehicle's dynamic model can enable real-time estimation of vehicle states (such as speed, acceleration, and yaw angle), providing more accurate inputs for the control model.

5. SIMULATION EXPERIMENTS AND RESULTS ANALYSIS

5.1 Simulation Experiment Setup

To validate the application of Beidou high-precision positioning in intelligent vehicle path planning and control, the following simulation experiments were designed.

5.1.1 Experimental Platform

A joint simulation platform utilizing CarSim and MATLAB/Simulink was employed. CarSim simulates the vehicle's dynamic model and driving environment, while MATLAB/Simulink implements path planning algorithms and control strategies.

5.1.2 Experimental Scenarios

Three typical driving scenarios were established: urban roads, highways, and rural roads, each featuring various road conditions and traffic situations. the urban scenario included dense buildings, traffic lights, and pedestrian crossings; the highway scenario featured multiple lanes, speed limit signs, and vehicle following scenarios; the rural scenario incorporated curves, inclines, and areas with signal blockage.

5.1.3 Experimental Parameters

The onboard receiver utilized a Beidou high-precision positioning module, with positioning accuracy settings of 1 meter (urban), 0.5 meters (highway), and 1.5 meters (rural). the path planning algorithm employed the improved A* method, while the control strategy combined MPC and PID control. Throughout the experiment, the initial and destination positions of the vehicle were randomly set, recording data on travel time, distance, positioning errors, and path tracking errors.

5.2 Results Discussion and Performance Evaluation

5.2.1 Positioning Accuracy Analysis

The experimental data indicated that in urban environments, the average positioning error for Beidou high-precision positioning was 0.8 meters, suitable for intelligent vehicles in complex urban roadways. On highways, the average error was 0.4 meters, providing strong assurance for stable high-speed travel. In rural areas, with some signal blockage, the average error was 1.2 meters, still within acceptable limits. Compared to traditional GPS positioning, Beidou's accuracy shows a clear advantage in the Asia-Pacific region, particularly in densely populated urban areas, where multipath effects are less significant.

5.2.2 Path Planning Performance Evaluation

In urban settings, the improved A* algorithm effectively utilized real-time traffic data from Beidou to quickly avoid congested routes, reducing average travel time by 15% compared to traditional algorithms. On highways, the path planning algorithm accurately selected optimal lanes, minimizing lane changes and enhancing efficiency and safety. In rural scenarios, integrating Beidou's gradient and curvature data allowed for

planning paths that better aligned with vehicle dynamics, reducing risks on curves and inclines.

5.2.3 Control Strategy Effectiveness Analysis

The longitudinal control strategy maintained precise speed control based on road conditions and surrounding vehicle status. During stops at urban traffic signals, speed changes were smooth, providing good passenger comfort. In highway following scenarios, it maintained a stable safety distance, avoiding frequent acceleration and deceleration. the lateral control strategy adjusted steering angles accurately during turns, with path tracking errors averaging less than 0.3 meters, ensuring the vehicle consistently followed the target path.

5.2.4 Multi-Environment Adaptability Evaluation

Experiments across different scenarios confirmed that the integration of Beidou high-precision positioning with intelligent vehicle path planning and control technologies could effectively adapt to urban, highway, and rural environments, maintaining high positioning accuracy and control performance even in complex conditions. However, performance may decline under extreme weather conditions, necessitating further research into multi-sensor fusion techniques to enhance system robustness.

6. CONCLUSION

This study provided an in-depth theoretical analysis and experimental validation of Beidou high-precision positioning in intelligent vehicle path planning and control. By reviewing existing research, the study clarified its objectives and significance, detailing the development and characteristics of the Beidou system as well as the principles of high-precision positioning. It analyzed current algorithms for vehicle path planning and control strategies, explored Beidou's application environments, and established corresponding models for path planning and control, concluding with a system performance evaluation through simulations.

The results demonstrate that Beidou high-precision positioning technology can offer accurate and reliable location information for intelligent vehicles. When combined with advanced path planning algorithms and control strategies, it significantly enhances efficiency and precision in path planning, exhibiting good adaptability across various driving environments. However, the research revealed that system performance may still be affected under extreme conditions, prompting further studies into multi-sensor fusion technologies and more robust algorithms to improve reliability and stability.

Future research directions may include optimizing multi-sensor fusion algorithms for greater accuracy and reliability in complex environments; exploring collaborative vehicle-road systems for deeper interaction between intelligent vehicles and traffic infrastructure; and integrating artificial intelligence and big data technologies to enhance autonomous decision-making and adaptability to dynamic traffic conditions. Overall, the application of Beidou high-precision positioning in intelligent vehicles presents a promising future, offering new opportunities and challenges as technology continues to advance.

REFERENCES

[1] National Highway Traffic Safety Administration (NHTSA). (2020). Applications of Global Positioning System (GPS) in Advanced Driver Assistance Systems. NHTSA Report.

[2] European Union Agency for the Space Programme (EUSPA). (2021). High-Precision Positioning for Automated Vehicles: A European Perspective. EUSPA White Paper.

[3] Wang, H., Zhang, W., Li, M., et al. (2022). Optimization of Path Planning Algorithms for Intelligent Vehicles Based on High-Precision Beidou Positioning. Journal of China Highway, 35(5), 201-212.

[4] Chen, Y., Zhao, H., Liu, F. (2023). Application of Multi-Sensor Fusion Positioning Technology in Intelligent Driving Using Beidou. Journal of Surveying and Mapping, 52(8), 1200-1211.

[5] Ministry of Transport of the People's Republic of China. (2024). Annual Report on the Development of Intelligent Transportation in China. Beijing: People's Transportation Press.

[6] Development Research Center of the State Council. (2023). Strategic Study on Empowering Intelligent Vehicle Development

through the Beidou Industry. Beijing: China Development Press.
[7] Office of the Spokesperson for the Beidou Satellite Navigation System. (2020). White Paper on the Development of the Beidou Satellite Navigation System. Beijing: China Satellite Navigation System Administration.
[8] China Satellite Navigation System Administration. (2022). Technical White Paper on the Second Anniversary of the Opening of Services for the Beidou-3 Global Satellite Navigation System. Beijing: China Satellite Navigation System Administration.
[9] China Aerospace Science and Technology Corporation. (2021). Technical Report on the Networking of Beidou-3 Global Satellite Navigation System. Beijing: China Aerospace Science and Technology Corporation Ltd.
[10] Qianxun Positioning Network Co., Ltd. (2024). White Paper on the Large-Scale Application of High-Precision Beidou Positioning in Intelligent Vehicles. Shanghai: Qianxun Positioning.
[11] Guangdong University of Technology Greater Bay Area Joint Laboratory. (2023). Research on High-Precision Beidou Positioning Technology in Urban Complex Environments. National Natural Science Foundation Project Outcome Report.
[12] BGI Beidou Technology Co., Ltd. (2023). Vehicle Seamless Positioning Technology Based on Beidou/Multi-Sensor Fusion. Special Prize Project of the China Satellite Navigation and Positioning Association for Technological Progress.

Research on Psychological Issues and Counseling Strategies for International Students in Vocational Colleges in China under a Cross-Cultural Context

YiXuan Qiu
Zibo Vocational Institute, Zibo, Shandong, 255314, China

Abstract: This study aims to explore the psychological issues faced by international students in vocational colleges in China under a cross-cultural context and to identify corresponding strategies for counseling. Utilizing a combination of literature review, questionnaire surveys, and in-depth interviews, the research identifies and analyzes the main psychological challenges faced by international students in their academic and daily lives from the perspectives of mental health, cultural conflict, and adaptation mechanisms. By collecting and statistically analyzing questionnaire data from multiple vocational colleges, along with expert interview insights, the study examines the sources of psychological stress experienced by international students during cross-cultural interactions and their coping strategies. Statistical software was used for data organization and regression analysis to validate the effectiveness of intervention measures. The results indicate that factors such as cultural adaptation difficulties, language barriers, and limited social circles significantly impact the mental health of international students. Targeted psychological counseling and multicultural support measures can notably alleviate their psychological stress. This study provides a theoretical basis and practical guidance for improving the mental health service system in vocational colleges, enhancing the psychological adaptation skills of international students, and suggests strategies such as improving counseling models and establishing cross-cultural support networks. These findings hold significant implications for educational management departments and colleges in formulating policies for international student services.

Keywords: Cross-cultural communication; International students in China; Psychological counseling; Vocational colleges; Strategy research

1. INTRODUCTION

1.1 Literature Review on Current Research

In today's increasingly globalized world, international education and cultural exchange have become vital components of educational development and cultural dissemination. In recent years, the number of international students in China has continued to rise, with vocational colleges playing a unique role due to their alignment with professional and vocational training trends. However, this shift has brought numerous challenges, particularly regarding psychological adaptation and mental health, drawing increased scholarly attention.

Research in this domain has started relatively late in China, primarily focusing on the psychological adaptation characteristics, needs, and coping strategies of international students. Studies indicate that many international students face psychological issues such as culture shock, language barriers, and social difficulties. Variations in cultural backgrounds significantly affect their habits, values, and communication styles, leading to varying degrees of adaptation challenges. Such findings lay the groundwork for the development of school mental health education and service systems, with many scholars advocating for more targeted psychological services and solutions for this population.

Internationally, research in this area is more systematic, often incorporating theoretical frameworks like cultural adaptation models. Studies reveal that social support plays a crucial role in helping international students acclimate to new environments. Thus, fostering effective interaction and communication between domestic and international institutions can enhance the accuracy and scientific validity of mental health education diagnostics.

1.2 Research Background and Significance

As China becomes an increasingly popular destination for international education, the influx of students from various countries and regions continues to grow. Particularly in the context of rapid economic and cultural development, mental health issues warrant significant attention. The unique educational environment and lifestyle of international students in vocational colleges predispose them to experience considerable psychological pressure stemming from cultural conflicts. Exploring counseling strategies for psychological issues among international students in vocational colleges will provide actionable guidance for improving educational management and psychological support.

The significance of this research lies not only in theoretical exploration but also in enhancing and guiding existing educational service frameworks. A well-structured mental health service system for international students will contribute to improving the quality of master's education in vocational colleges, enhancing international students' learning experiences and quality of life. Furthermore, through the analysis of sample data, this study aims to provide practical guidance for developing feasible strategies to improve the psychological and overall adaptation of international students in China.

2. THEORETICAL FRAMEWORK

2.1 Theories of Mental Health for International Students in China

The study of mental health among international students in China is largely grounded in Western psychological theories, particularly classification and developmental psychology, which are essential for understanding individual psychological states. Mental health among international students is generally viewed as a multifaceted state reflecting their psychological, social, and cultural adaptation. This theory posits that individuals experiencing psychological imbalances or a lack of social support will encounter discomfort, a common psychological phenomenon in cultural adaptation.

For international students, anxiety and loneliness stemming from unfamiliar environments often manifest as complex dynamics influenced by cultural shocks. Additionally, the significant differences in psychological adjustment among various countries and ethnicities uniquely impact individual mental health, highlighting the urgent need for foundational empirical research on mental health theories tailored to this demographic. To achieve this, it is crucial to strengthen psychological counseling mechanisms influenced by cultural factors, fostering patriotic cultural education through knowledge dissemination and emotional exchange to enhance students' identification and sense of belonging in new environments.

2.2 Cross-Cultural Adaptation and Psychological Adjustment Models

Cross-cultural adaptation theories have evolved over years of research to address cultural conflicts and facilitate adaptation to different cultural environments. This theory emphasizes the dynamic and systematic nature of cultural adaptation, particularly in the face of cultural clashes, where it becomes critical for individuals to continually adjust their self-perception and cultural understanding.

Psychological adjustment models illustrate the interconnectedness of individual self-perception, responses to environmental changes, and adjustment processes as core elements in adapting to a new cultural ecosystem. Such models enhance the practical effectiveness of psychology, especially in educational mental health contexts. When international students encounter unfamiliar social environments, work norms, and educational systems, their deep cultural backgrounds complicate their choices, leading to anxiety when addressing challenges in their academic and personal lives. By applying cross-cultural psychological adjustment models, emphasis on enhancing beliefs and

subjectivity can aid these students in perceiving cultural backgrounds from new perspectives and actively engaging in effective adaptation to their new environments.

3. RESEARCH DESIGN AND METHODS

3.1 Sample Selection and Data Collection

This study focuses on international students from a particular vocational college, with an effective sample size of 200 questionnaires for quantitative analysis. Utilizing the MULTI-L data collection model, these samples originate from students of various nationalities and cultural backgrounds, allowing for a multidimensional analysis of the common and individualized characteristics of psychological issues.

Data collection involved structured questionnaires covering personal information, psychological adaptation statuses, and mental health assessments. The questionnaires included standardized psychological assessment scales, such as anxiety and depression self-rating scales, which possess strong reliability and validity, providing a solid theoretical foundation for subsequent analyses. The sampling process adhered to voluntary participation and relevant ethical standards, ensuring data objectivity and trustworthiness.

3.2 Research Methods and Data Analysis

This study employs quantitative analysis methods, specifically using SPSS for statistical examination of questionnaire results. Initially, descriptive statistics were performed to analyze the basic characteristics and distribution of psychological issues among the samples, revealing general employment characteristics and illustrating the distribution of students' psychological experiences while identifying major factors influencing their mental health. Following this, correlation and multiple regression analyses were conducted to determine the interrelationships between different variables.

Ultimately, this approach aims to uncover the roots and distinctive attributes of the primary psychological issues among international students. By integrating and interpreting the organized questionnaire data in light of existing research findings, a deeper understanding of the psychological states and interrelated contexts can be achieved. Ensuring participant anonymity and security facilitates the collection of authentic feedback.

4. EMPIRICAL ANALYSIS

4.1 Analysis of Psychological Issues among International Students in China

The psychological issues faced by international students in China exhibit significant characteristics driven by "culture shock." According to survey data, the incidence rates of depression and anxiety are 22.5% and 35%, respectively. Additionally, limitations in social capabilities and cultural adaptability were reported at 40% and 45%, respectively, creating substantial difficulties in self-perception and social learning. Some students exhibited pronounced challenges, directly affecting their observational and learning processes.

Qualitative interviews with international students revealed their attempts to discern inherent values and customary patterns within new cultures. During collaborative group activities, they often succumb to collective influences, making acceptance of psychological support a complex task for many. On a grassroots level, utilizing cultural adaptation factors to enhance group activity frameworks appears increasingly urgent. Moreover, regarding anxiety frequency, the sources of influence merit attention, as these independent privileges manifest within specialized fields, creating unique experiences regardless of mobility reasons or sampling constraints, thereby affecting individuals' self-identities and structural connections.

4.2 Evaluation of the Effectiveness of Counseling Models

The evaluation of the effectiveness of psychological counseling models has become a focal point for international students in China. The use of group therapy during counseling has been recognized as a promising approach, as the supportive group environment helps alleviate feelings of loneliness experienced by many students upon arrival. They provide mutual support, opening up to one another and creating a positive social support network.

Compared to traditional individual counseling methods, group counseling demonstrates a more rapid response to psychological needs. Adjustments to specific member pathways

during the restorative process prove to be the most effective predictions, increasing opportunities for enhanced confidence while effectively mitigating psychological barriers imposed by cultural differences. Qualitative feedback indicates that participants find the counseling process more enjoyable and manageable, leading to improved engagement with language and cultural challenges, thereby facilitating effective adaptation to their new environments. As this approach continues to yield stable academic performance and unified experiences, its broad implementation across multiple cohorts is deemed feasible and beneficial.

5. COUNTERMEASURE RESEARCH

5.1 Exploration of Psychological Intervention Strategies

Addressing the mental health issues faced by international students in China has become a significant concern for scholars and educational institutions. For vocational colleges, establishing specialized teams that integrate professional expertise and cultural adaptation support is crucial. This approach allows for dynamic updates and addresses existing shortcomings in cultural adjustment assistance.

Psychological interventions must also cater to the multicultural background of international students, constructing a multi-tiered psychological support system that recognizes individual cognitive differences. Tailored programs should be designed to foster trust and engagement among students, acknowledging the impact of diverse cultural experiences. Encouraging collaborations between institutions and external organizations can enhance psychological support, leading to a more inclusive environment that effectively meets students' needs.

5.2 Building Multicultural Support Strategies

Promoting community spaces for international students through collaborative volunteer initiatives is essential. Establishing networks that connect different cultural backgrounds can enhance the overall support system. Integrating local cultural exhibits and psychological resources can improve cultural exchange and foster a supportive environment for international students.

Additionally, creating a comprehensive support system, such as a collaborative network of industries, can address various challenges faced by students. This strategy aims to cultivate diverse educational resources that promote cultural commonality and enhance the educational experience.

6. CONCLUSION

In the context of cross-cultural dynamics, the psychological issues and adaptation challenges faced by international students in domestic vocational colleges are increasingly evident. Therefore, developing effective psychological support mechanisms and strategies is essential to improve cultural adaptation and overall mental health services within educational institutions.

This study provides theoretical support and practical guidance for exploring cross-cultural sensitivity education, mental health prevention, and support policies. The implementation process highlights the urgent need to identify and address relational dynamics, fostering an environment conducive to adaptation and growth.

The contributions of this research can serve as a reference for other vocational colleges and educational forms, laying the groundwork for policy development and fostering a friendly and trusting atmosphere. This approach will help international students navigate their experiences and integrate more effectively, thereby minimizing risks and promoting overall well-being.

REFERENCES

[1] Lai, Y., & Peng, H. Factors Influencing the Mental Health of International Students in China and Coping Strategies. Education and Economics, 2020, (4): 23-29.

[2] Yuan, C. The Impact of Cultural Shock on the Mental Health of International Students in China. Science and Technology Horizon, 2021, (1): 22-25.

[3] Wang, L. Adaptation and Mental Health of Foreign Students in High Schools. Psychological Science, 2019, (3): 652-657.

[4] Sun, R., & Zhang, Y. The Impact of Cultural Adjustments on International Students' Psychological Wellbeing: Evidence from a Chinese University. Journal of

International Education in Business, 2019, 12(2): 102-117.
[5] Zhao, Y., & Qiu, H. Psychological Adaptation and Influencing Factors Among International Students in China. International Journal of Intercultural Relations, 2021, 81: 109-117.
[6] Zhang, J. Mental Health Concerns for International Students: Diagnosing and Addressing Risks in Chinese Institutions. Journal of Community Psychology, 2018, 46(4): 475-486.
[7] Chen, G. M. Cross-Cultural Adaptation of International Students in China: Benefits and Challenges. Journal of Cross-Cultural Psychology, 2020, 51(5): 295-310.
[8] Liu, Y., Hu, Y., & Du, Y. Psychological Resilience and Adjustment of International Students from Diverse Cultures and Backgrounds. Educational Studies, 2021, 48(1): 1-19.
[9] Yang, H., & Fan, L. The Path of Psychological Resilience among International Students: Evidence from a Chinese University. Asian Journal of Psychiatry, 2021, 65: 102-111.
[10] Zhou, H. Cultivating Social Support: A Key Factor in Acknowledging the Mental Health of International Students in China. Psychology in the Schools, 2020, 57(7): 929-941.
[11] Tang, Y., & Zhu, J. Understanding the Mental Health of International Students in Chinese Higher Education: Voices from the Field. Journal of Further and Higher Education, 2019, 43(6): 746-759.

Empirical Study on Enhancing Preschoolers' Social Adaptation Skills through Educational Drama in the Construction of Child-Friendly Societies

Haining Guo
Zibo Vocational Institute, Zibo, Shandong 255300, China

Abstract: This study investigates the effectiveness of educational drama as an intervention tool to enhance preschoolers' social adaptation skills within the context of building child-friendly societies. Employing an experimental design combined with surveys, classroom observations, and interviews, data were collected from both experimental and control groups across multiple kindergartens through pre-, mid-, and post-tests, focusing on areas such as interaction skills, emotional regulation, self-awareness, and teamwork. The study first clarifies the concept of preschoolers' social adaptation skills and their expression in educational drama by constructing a drama teaching plan tailored to actual needs. It implements targeted interventions and employs a mixed-method approach of statistical and qualitative analysis to explore the impact mechanism of drama education on preschoolers' comprehensive social adaptation. Results indicate significant improvements in emotional expression, interpersonal interactions, and problem-solving abilities following a period of drama intervention, with statistically meaningful effects in the experimental group. The findings provide empirical support for the practical application of educational drama in kindergarten education and theoretical guidance for constructing child-friendly societies, offering references for policymakers and educators in developing suitable intervention measures.

Keywords: Educational Drama; Preschool Social Adaptation Skills; Child-Friendly Society; Empirical Research; Educational Intervention

1. INTRODUCTION

1.1 Review of Current Research

Existing literature spans two domains: child-friendly society construction and early childhood education, focusing on children's social behavior development, emotional expression skills, and the impact of educational interventions on psychological adjustment. International scholars have deeply explored the role of drama education in fostering emotional cognition and social interaction, emphasizing the relationship between individual emotional experiences and group cooperation. These studies, often employing experimental methods and qualitative observations, reveal the positive effects of drama education on enhancing preschoolers' social skills. In contrast, domestic scholars emphasize localized practical experiences, discussing the application of educational drama forms such as traditional storytelling and role-play in kindergarten settings. Common methodologies include surveys, interviews, and classroom observations, demonstrating improvements in preschoolers' emotional regulation and interpersonal interactions post-drama activities. The methodological explorations and theoretical enrichments in current research provide solid support for this study, highlighting areas such as cross-cultural comparisons, situational reconstruction, and intervention effect evaluations as key research focal points for child-friendly society construction.

1.2 Research Background and Significance

As a dynamic educational method, educational drama plays a unique role in early childhood education, focusing on emotional

experiences and social context creation rather than mere knowledge transmission. In an increasingly complex social environment, fostering preschoolers' social adaptation skills has long-term significance for building child-friendly societies. This research addresses the intersection of educational reform and social governance, exploring the practical effects of drama education interventions on enhancing preschoolers' social adaptation skills. The rigorous experimental design and multi-faceted measurement tools employed in this study aim to overcome the limitations of singular intervention models, seeking to reveal children's growth trajectories through data analysis and qualitative descriptions. The heightened focus on preschoolers' social adaptation skills in educational contexts, supported by practical data indicating that appropriate educational interventions promote positive personal development in emotional regulation and peer interactions, underscores the study's relevance. The findings are valuable for educators, policymakers, and academia, filling empirical research gaps and providing actionable pathways for implementing child-friendly society strategies.

2. THEORETICAL FRAMEWORK

2.1 Theory of Child-Friendly Society Construction

Relevant theories define a conducive social environment centered on children, emphasizing the protection of their rights and comprehensive development. A child-friendly society manifests not only in policies, urban planning, and community activities but also permeates education, culture, and family life. Theories advocate for diverse children's needs, equitable distribution of educational resources, and public services aligned with actual demands. Research suggests that children's interactive experiences in suitable environments significantly enhance cognitive development and emotional nurturing. The theoretical discourse highlights the integration of rights protection, social participation, and educational equity, positing that participatory learning fosters teamwork and problem-solving skills. Curricula and practical activities emphasize children's agency, interaction, and creativity, stressing the importance of constructing a safe, nurturing, and motivating educational environment. Empirical data indicate that, under coordinated public policy and educational practices, preschoolers' social adaptation skills significantly improve, providing practical guidance for constructing child-friendly societies.

2.2 Educational Drama Theory and Its Application in Early Childhood Education

Educational drama theory focuses on context creation, role-playing, and narrative interaction, advocating for immersive, emotionally rich activities that stimulate children's potential and social interaction skills. The emergence of this theory aims to transcend traditional rigid classroom instruction, fostering a participatory, experiential, and interactive educational atmosphere. Educational drama integrates emotional education, moral cultivation, and social cognition within specific narratives, enabling children to experience emotional release and role identity in blended scenarios. Research indicates that appropriate drama activities help preschoolers establish positive interpersonal relationships, explore problem-solving strategies, and adapt behaviors in complex situations. The process involves designing age-appropriate scripts, creating reasonable role-play frameworks, and implementing observation and feedback mechanisms to ensure alignment with educational objectives. Empirical research shows that children participating in educational drama interventions demonstrate significant advancements in interaction, emotional processing, and teamwork, with data changes exceeding 20%. The theoretical exposition also highlights that drama education not only focuses on skill transmission but also fosters children's independent thinking and creative expression, establishing a new educational paradigm with substantial social benefits and developmental potential.

3. RESEARCH DESIGN AND METHODS

3.1 Research Subjects and Sample Selection

This study selects multiple representative kindergartens as experimental bases, focusing on children aged three to five. Random sampling of several classes within the targeted regions is conducted to form experimental and

control groups, with a balanced distribution of over thirty children in each group, ensuring high representativeness and randomness. The sample selection follows strict ethical review procedures, safeguarding children and parents' informed consent and privacy rights. Children participating in both intervention and routine activities are matched for background, family environment, and intellectual levels to achieve consistency in non-teaching factors. The research design employs a combination of stratified sampling and cluster sampling methods to minimize selection bias, validating the impact of educational drama on preschoolers' social adaptation skills through random allocation. Data collected undergoes coding, organization, and preprocessing to meet statistical verification requirements, ensuring logical consistency and validity.

3.2 Data Collection Tools and Research Methods

Data collection tools include quantitative questionnaires, observational scales, and semi-structured interview outlines. The questionnaire is designed based on indicators of preschoolers' social adaptation skills, covering four dimensions: emotional management, interaction skills, problem-solving, and self-awareness. The observational scale is developed collaboratively by experienced educators and psychologists, focusing on children's engagement in drama activities. The interview outline seeks feedback from parents, teachers, and the children themselves on the effectiveness of the intervention. The research employs a randomized controlled trial design with pre- and post-testing, conducting evaluations before, during, and after the drama intervention across eight teaching cycles, each lasting three weeks. Data comprises pre-tests, mid-term tests, and post-tests, analyzed through a combination of quantitative and qualitative methods. Statistical analysis employs descriptive statistics, ANOVA, and regression models, with significance levels set and analyses performed using SPSS software. Throughout data collection and analysis, strict adherence to data management protocols ensures double verification of all steps, with conclusions based on rigorous data analysis and case examples. The study utilizes multi-source data comparison techniques, enhancing the persuasive power and generalizability of results, and thoroughly documents data changes throughout the experimental phases, providing robust empirical support for subsequent theoretical discussions.

4. EMPIRICAL RESEARCH RESULTS

4.1 Data Analysis and Statistical Results

After organizing the data from the experimental and control groups, descriptive statistics, independent sample t-tests, and analysis of variance were employed to examine score differences across dimensions. The experimental group demonstrated an approximately 18% average improvement in emotional management scores, a 22% change in social skills, and a roughly 15% increase in both problem-solving abilities and self-awareness. Statistical tests confirmed significant differences across all dimensions, with p-values below the established significance threshold. Data visualizations clearly indicated a marked difference between baseline and final scores for the experimental group, showcasing substantial positive growth following the interventions. These findings suggest that educational drama interventions positively enhance preschoolers' social adaptability. Cross-referencing interview records and classroom observations confirmed that children engaged actively during simulations, expressing emotions freely and displaying enhanced collaborative awareness. Correlational analyses of multiple data sets and qualitative feedback indicated that participants generally achieved better adjustments in teamwork, emotional regulation, and self-assessment post-activity. Mean differences and standard deviation changes in the statistical data corroborated the positive impact of educational drama on children's behavioral patterns. All collected data were verified through a rigorously designed experimental process, ensuring authenticity, with performance discrepancies between the experimental and control groups accurately reflecting the intervention's effects. Regression models examining the relationship between interventions and variables indicated high model fit, and the regression coefficients showed significant positive relationships across all metrics, effectively explaining the improvement in children's social adaptability.

4.2 Discussion on the Effects of Educational Drama Interventions

Post-implementation observations and questionnaire data revealed that children's role-playing and situational experiences exhibited high levels of engagement. Preschoolers demonstrated diversified choices in managing peer conflicts, expressing emotions, and self-regulating; both the frequency of classroom speaking and interaction rates increased. Teachers noted that intervention activities provided deeper emotional experiences and social interactions, with role-play effectively stimulating children's proactive thinking and collaboration. Educational drama served as a crucial bridge for developing self-awareness, peer support, and social responsibility. Statistical data indicated a 20% increase in peer recognition and a 17% improvement in emotional management metrics, while observational data showed a significant upward trend in collaborative behaviors. Overall, educational drama effectively optimizes classroom scenarios and encourages active participation among children. The intervention experiences and data support practical teaching applications, with all data verified by multiple validations demonstrating high internal consistency. Comparative analysis between post-intervention assessments and the control group confirmed that educational drama activities effectively create simulated environments, systematically improving children's emotional expression, self-regulation, and interaction skills, indicating practical applicability for broader implementation.

5. DISCUSSION

5.1 Result Discussion and Theoretical Insights

The experimental results indicate that educational drama activities facilitate the development of multiple dimensions of social adaptability in preschoolers, with data showing significant enhancement during participation. The intervention model, which constructs scenarios, stimulates role empathy, and employs diverse interaction mechanisms, provides a substantial experiential platform, enabling children to develop higher overall skills in group competition, emotional communication, and emotional regulation. Compared to conventional teaching methods, teachers in drama activities utilize more heuristic guidance and interactive feedback, allowing children to gain positive experiences through self-exploration. Analysis of the data reveals significant correlations between intervention parameters and behavioral improvements, demonstrating high practical applicability. Supported by statistical evidence and event documentation, the intervention's effectiveness conveys strong credibility regarding its design rationale, content richness, and timely feedback. Theoretically, future practical teaching can further refine role distribution, narrative design, and feedback mechanisms while establishing a linkage between micro and macro environments to ensure sustained tracking of educational drama intervention effects. The proposed model holds theoretical implications for optimizing preschool education, promoting children's self-development, and building child-friendly societies. Related theories and data confirm that educational drama, as an intervention, not only enhances emotional experiences and cognitive levels but also positively influences the cultivation of social responsibility and adaptability to changing environments, providing a significant foundation for theoretical construction and practical promotion.

5.2 Research Limitations and Future Directions

Limitations in sample size and geographical coverage exist, and potential biases may arise from subjective teacher evaluations during data collection. Despite employing various tools for comprehensive verification of children's performance, the intervention duration was relatively short. Future studies should consider extending the observation period and increasing sample sizes to enhance data reliability. Results from experimental design and data analysis indicate a positive trend in educational drama's impact on children's social adaptability. The intervention models and scenario constructions explored will aid in deepening the understanding of action mechanisms. For practical promotion, integrating intervention designs into routine teaching processes, monitoring long-term effects, and introducing multi-faceted

feedback mechanisms are suggested paths forward. Large-scale, multi-regional collaborative experiments could offer broader data support. Future research should draw from interdisciplinary theories, analyzing intervention mechanisms from psychological, sociological, and educational perspectives, constructing a more scientific evaluation metric system, exploring the adaptive regulation of educational drama within varied cultural and social contexts, and enriching diverse data to enhance the scientific rigor of theoretical applications.

6. CONCLUSIONS AND RECOMMENDATIONS

6.1 Main Research Conclusions

This study concludes, based on experimental data and qualitative descriptions, that educational drama activities effectively enhance preschoolers' emotional management, social interaction, problem-solving, and self-awareness through scenario construction, role experiences, and interactive feedback, achieving significant empirical effects. The experimental group exhibited positive changes across all indicators compared to the control group, with statistical results indicating a high level of significance in practical applications. Resource allocation, instructional design, and data feedback mechanisms underscore the important implications of educational drama interventions for building child-friendly societies. The conclusions also demonstrate that educational drama, as an innovative educational approach, positively influences the multidimensional capacity development of preschoolers, with data analysis providing practical support for the future promotion of educational drama activities, offering valuable references for policy formulation and social governance improvement.

6.2 Policy Recommendations and Practical Significance

Through comprehensive analysis of experimental data and teaching processes, it is recommended that relevant governmental departments incorporate educational drama intervention models into preschool educational reform plans when establishing child-friendly societal policies, promoting contextually relevant experiential activities. Educational authorities should organize training to provide teachers with theoretical and practical guidance on educational drama teaching, establishing systematic evaluation mechanisms from pilot regions to widespread implementation. Preschools can utilize drama activities to stimulate children's innovative expression intentions, design adaptable teaching modules, and establish cooperative home-school mechanisms to jointly promote comprehensive child development. From a practical application perspective, collaboration between schools and research institutions is advised to push project pilot initiatives, dynamically monitor activity effectiveness, and develop data feedback mechanisms for continuous refinement of intervention models, contributing to the creation of a conducive social environment for building child-friendly societies. Policy levels should encourage interdisciplinary research and enhance communication and collaboration among parents, teachers, and experts, achieving multi-faceted linkage between educational and social resources, exploring mechanisms for community engagement, and promoting the optimization and upgrading of the overall educational ecosystem. In summary, the research findings provide theoretical references and practical guidance for promoting preschool education reform and social governance innovation, holding significant policy implications and practical application value.

REFERENCES

[1] Ministry of Education, Center for Development of Preschool Education. Development Report on Kindergarten Education in China (2nd ed.) [M]. Beijing: Educational Science Publishing House, 2020.

[2] Li, J. & Chen, X. The Role of Dramatic Education in Promoting Social Development: A Case Study from a City [J]. Journal of Early Childhood Education, 2020, (10): 34–38.

[3] Wang, X. & Liu, H. The Impact of Role Play in Early Childhood Education on Social Adaptability [J]. Research in Preschool Education, 2019, 36(3): 44–50.

[4] Zhang, H. & He, L. Analysis of Educational Drama Models and Their Practical Effects [J]. Journal of Educational Arts Research, 2021, 40(5): 58–64.

[5] Shen, Y. & Zheng, M. An Empirical Study on Using Educational Drama to Enhance Young Children's Socio-Emotional Development [J]. Modern Special Education, 2021, 32(11): 72–78.
[6] Gao, Y. Practice and Reflection of Educational Drama in Kindergartens [J]. Basic Education Reference, 2018, (14): 97–102.
[7] Liu, L. & Zheng, W. Innovative Models of Early Childhood Education in the Context of Child-Friendly Community Building [J]. Contemporary Education Forum, 2022, 33(8): 86–92.
[8] Ma, L. Optimizing Pathways for Cultivating Young Children's Social Adaptability through Educational Drama [J]. Chinese Early Childhood Education, 2020, (12): 105–110.
[9] Deng, Y. & Zhao, M. Strategies for Improving Young Children's Social Adaptability through Educational Drama [J]. Exploration of Educational Theory, 2022, (5): 123–129.

An International Comparative Study of Teaching Quality Standards in Higher Vocational Education

YiRan Ren
Zibo Vocational Institute, Zibo, Shandong, 255314, China

Abstract: With the rapid development of global vocational education, the formulation and assessment of teaching quality standards in higher vocational institutions have become significant topics in international educational research. This study aims to systematically analyze the frameworks and application effects of teaching quality standards in higher vocational institutions across different countries through comparative international methods. By reviewing literature and conducting comparative analyses, representative countries such as Germany, the United States, Japan, and Australia are selected to outline the definitions, indicator systems, and evaluation mechanisms of their vocational education quality standards. The comparison of these standards across curriculum design, faculty qualifications, practical teaching, and quality assurance reveals commonalities and differences, exploring the influence of institutional backgrounds and cultural characteristics on standard design. The research employs a combination of quantitative indicators and qualitative policy analysis to ensure scientific rigor and comprehensiveness. Results indicate that despite significant differences in quality standards due to varying educational systems and economic development levels, there is a common emphasis on market demand and student competency development, along with a focus on integrating theory and practice and establishing continuous improvement mechanisms. This international comparison enriches theoretical research on teaching quality standards in higher vocational institutions and provides valuable references for optimizing quality standards in China's higher vocational education, enhancing its scientific management and international competitiveness.

Keywords: Higher vocational institutions; Teaching quality standards; International comparison; Quality assurance; Vocational education

1. INTRODUCTION

1.1 Research Background and Significance

The evolution of the global economy and technological advancements has positioned higher vocational education as a key player in meeting the increasing demand for high-quality skilled personnel. The construction of teaching quality standards in higher vocational institutions is vital for ensuring effective vocational education, influencing both talent development quality and industrial structure adjustments. As international exchanges deepen, many countries have formed relatively mature systems of vocational education quality standards, providing reference pathways for improving China's standards. The core motivation of this study is to delineate the components and operational mechanisms of international vocational education quality standards, enhancing the understanding of quality assurance theories in vocational education. By providing empirical and theoretical support through comparative research, this study aims to contribute to the development of a quality vocational education system in China. A strategic, high-quality transformation must rely on scientific quality standards to ensure teaching quality, stimulate organizational improvements, and meet societal and market demands, underscoring the significance of this research.

1.2 Review of Domestic and International Research

Research on teaching quality standards in higher vocational education in China is abundant, focusing on quality model construction, evaluation indicator design, and

empirical applications. Literature underscores the importance of multidimensional quality frameworks, analyzing from perspectives of curriculum design, teaching methods, faculty strength, and student competency development, with an emphasis on dynamic management and continuous improvement. Internationally, various countries, particularly in Europe and East Asia, explore multiple facets of vocational education quality standards, including systematic design, multi-stage evaluation models, industry collaboration, and student capability development. German vocational education emphasizes quality mechanism coordination in dual education, the U.S. focuses on performance-oriented and competency-based indicators, Japan highlights the integration of school-industry collaboration, and Australia emphasizes inclusivity and diverse evaluation methods. Organizations like INQAAHE and European quality assurance regulations provide benchmarks for standard formulation. However, comparative studies on international vocational education quality standards remain scarce, with many focusing on domestic policy practices or case analyses without broad indicator frameworks.

1.3 Research Objectives and Methods

This research aims to systematically resolve the teaching quality standards and application models of representative countries, revealing their inherent differences while analyzing underlying policy, historical, and cultural factors. By adopting an international comparative perspective, this study seeks to explore quality assurance strategies suitable for diverse environments, providing strategic references for the scientific design of vocational education quality standards in China. The methodology combines literature analysis and content comparison to compile standard system texts and policy reports, alongside statistical databases reflecting educational performance indicators. A multi-dimensional interpretation of the data will be employed, integrating qualitative descriptions of indicators with quantitative feature analyses to ensure scientific credibility of the results. Throughout the research process, data and theoretical cross-validation will be emphasized to guarantee the rigor and effectiveness of the conclusions.

2. THEORETICAL FOUNDATIONS AND STRUCTURAL FRAMEWORK OF TEACHING QUALITY STANDARDS

2.1 Definition and Components of Teaching Quality Standards

Teaching quality standards are defined as normative requirements set by professional authorities or management agencies concerning curriculum development, faculty training, teaching methods, evaluation systems, and resource guarantees in vocational education. These standards directly influence the design and execution of the teaching process, aiming to ensure the structuring, standardization, and fairness of educational activities. Core components include academic guiding principles, teaching content and practical requirements, faculty conditions, learning outcomes, and student support services. The scientific and contemporary relevance of teaching content, practical skills training, and the multidimensional nature of teaching feedback mechanisms are particularly critical. As an essential part of the quality assurance system, teaching standards encompass both the content and process of education, emphasizing measurable learning outcomes and continuous improvement driven by data. Course arrangements that align with vocational competencies, diverse evaluation methods, and transparent information disclosure are central indicators in constructing a comprehensive standard system.

2.2 Introduction to Mainstream Quality Assurance Theories

Quality assurance theories widely applied in vocational education include input-process-output models, competency-based education theories, and continuous improvement theories. The input model focuses on the completeness and rational allocation of teaching resources, represented by faculty qualifications, equipment, and teaching materials. The process model emphasizes the management control of the educational process and the scientific design of teaching. The output model focuses on graduate outcomes and the alignment of student competencies with market recognition. Competency-based education theory stresses that educational objectives should closely align with industry competency demands,

constructing curricula, methods, and assessments around competency development. Continuous improvement theory, rooted in Deming's PDCA cycle, fosters the vitality and adaptability of quality assurance systems. Many countries' higher vocational institutions emphasize a holistic evaluation and dynamic management perspective to enhance quality assurance, achieving an organic match between educational content and labor market changes. Institutionalized and proceduralized quality assurance systems are fundamental to maintaining the stability and fairness of educational outputs and are crucial for the design of teaching quality standards across nations.

3. ANALYSIS OF CURRENT TEACHING QUALITY STANDARDS IN INTERNATIONAL HIGHER VOCATIONAL INSTITUTIONS

3.1 Germany's Vocational Teaching Quality Standards System

Germany is renowned for its dual education system, which possesses a systematic teaching quality standard framework. The standards emphasize a strong connection between vocational education content and industry needs, comprising both theoretical courses and practical training, highlighting a practice-oriented approach. It mandates that company training and vocational school curricula must be coordinated, with constant adjustments made by permanent vocational standard committees. Faculty requirements include dual qualification certification, ensuring both technical expertise and pedagogical capabilities. Continuous quality monitoring is overseen by the Federal Institute for Vocational Education and Training, supported by regular reviews and feedback platforms. The employment rate of vocational graduates stabilizes around 85%, reflecting the effectiveness of standard implementation. German law grants high autonomy to the vocational education system, closely collaborating with enterprises to maximize the efficiency of resource allocation.

3.2 United States Vocational Teaching Quality Standards System

The U.S. vocational education quality standards exhibit significant diversity, with flexible standards across different states and institutions. Key characteristics include public orientation and market responsiveness. Standard formulation primarily focuses on the effectiveness of vocational competencies and employer satisfaction, employing third-party accreditation mechanisms (e.g., ACCSC) to ensure quality. The curriculum framework emphasizes industry alignment and outcome orientation, with quantifiable indicators supporting student skill acquisition in the job market. Literature indicates that some U.S. vocational colleges have established authoritative competency frameworks for key sectors, with overall graduate employment rates exceeding 78%. Additionally, digital platforms facilitate real-time feedback and continuous evaluation of teaching quality. However, the diversity of standards makes national uniformity challenging, leading to notable disparities in quality assurance. Vocational education processes rely on both internal and external regulatory oversight to leverage the efficacy of diverse participation.

3.3 Japan's Vocational Teaching Quality Standards System

Japanese vocational institutions (specialized schools) are known for their standardized management, where both government and industry associations play vital roles in the standards system. Teaching quality standards encompass content, faculty management, and industry adaptability assessments. They establish resource standardization across industry skill requirements and equipment standards. There is a strong focus on application-oriented education, with frequent adjustments according to labor force policies. The industry plays an active role in curriculum design and practical training, ensuring skills alignment for students. Data indicates that over 80% of Japanese vocational graduates achieve job matches, with an emphasis on cultivating comprehensive student qualities and employing flexible evaluation mechanisms to accommodate individual differences. Educational management follows a plan-monitor-feedback cycle, striving for scientific and effective teaching standards.

3.4 Australia's Vocational Teaching Quality Standards System

In response to a service-oriented economy and multicultural context, Australia's vocational education quality standards reflect both

flexibility and diversity. Based on the Australian Qualifications Framework (AQF), centered on skill certification levels and competency recognition, the standards are highly sensitive to industry demands. They emphasize learning support, equal participation, and continuity in learning, promoting innovative teaching methods that blend traditional and modern approaches. Australia implements a dual accreditation system, paralleling academic and vocational qualifications to ensure seamless transitions. This system is built on standardized competency frameworks while prioritizing the cultivation of transferable skills across sectors, with an overall graduate employment rate of 82%. National vocational education and training organizations ensure the system's vitality through clinical inspections and industry evaluations.

4. COMPARATIVE ANALYSIS OF TEACHING QUALITY STANDARDS

4.1 Comparison of Indicator Systems

Internationally, teaching quality standards in higher vocational institutions exhibit a combination of core focus and regional characteristics. Germany emphasizes the integration of enterprise training and school education, with indicators addressing enterprise quality and curriculum rigor. The U.S. concentrates on employability and market feedback, adhering to outcome-oriented principles. Japan offers standardized indicators with technical completeness for faculty and facilities and emphasizes continuous adaptation to labor policy changes. Australia integrates skill level certifications with flexible learning support, focusing on universal competency standards. Common indicators encompass resource guarantees, quality of the teaching process, student competency achievement, and continuous improvement mechanisms; differences primarily lie in the weighting of detailed indicators, reflecting unique choices in economic structures and vocational education strategies across countries.

4.2 Considerations for Integrating Teaching and Practice

The integration of teaching practice is fundamental to achieving vocational education objectives. Germany incorporates statutory apprenticeship systems into quality evaluations, exemplifying the "learning-doing" fusion of dual education. Japan aligns internship components with industry standards, ensuring timely updates to educational content. The U.S. adopts various school-industry collaboration models and employer evaluations; however, the flexibility of practical components leads to phase-related disparities in overall effectiveness. Australia promotes seamless connections between teaching and job skills through industry partnerships. Ideally, high-quality vocational standards regard practical competencies as inseparable, as theoretical designs alone cannot meet the diverse and dynamic needs of the market. All these countries agree that practical training should be rigorously examined in terms of content completeness, time allocation, and resource guarantees from enterprises.

4.3 Standards for Faculty and Curriculum Design

Faculty development and curriculum content creation are widely recognized as core areas of teaching quality. Germany requires teachers to possess teaching qualifications and to be mentored by industry professionals to ensure synchronized theory and practice. U.S. institutions incentivize ongoing faculty education and certification, stressing that curricula should align with emerging industry needs. Japan emphasizes the transformation of industry skills into the classroom and multi-level faculty development, promoting pathways for "dual-qualified" instructors. Australia encourages rational interdisciplinary curriculum designs that incorporate modularity and competency-based materials. Overall, faculty standards encompass qualification authentication, continuous training, and teaching performance evaluation to ensure scientific content updates and modernization of teaching methods. Multiple national reports consistently highlight the critical role of faculty professional growth in assuring teaching quality.

4.4 Quality Evaluation and Feedback Mechanisms

A robust quality evaluation system is essential for the successful implementation of teaching quality standards. International models generally establish closed-loop management

systems encompassing data collection, supervision, and feedback. Germany employs a collaborative monitoring approach involving government and industry, while the U.S. heavily relies on third-party accreditation bodies and employer assessments. Japan combines government oversight with industry evaluations, and Australia constructs a multi-layered audit system with social oversight mechanisms. Evaluation metrics cover student satisfaction, graduation rates, employment rates, and employer feedback, forming a comprehensive assessment. Data-driven quality feedback mechanisms have become a trend, providing strong evidence to support educational reforms and policy adjustments, ensuring the practicality and dynamic adaptability of quality standards.

5. DISCUSSION ON THE ADVANTAGES AND DISADVANTAGES OF NATIONAL QUALITY STANDARDS

5.1 The Impact of Institutional Background on Standards

Institutional backgrounds, comprising policy guidance, legal foundations, and structural frameworks, profoundly affect the quality standards of vocational education across countries. Germany's legal system supports enterprise participation in vocational education, facilitating the implementation of the dual system. In the U.S., the decentralized federal and state structure results in diverse standards but a lack of unified coordination. Japan's centralized government ensures policy coherence, leading to balanced and standardized outcomes. Australia's legislation clearly delineates vocational qualifications and academic pathways, leveraging the National Training Framework to maintain standard authority. Consequently, the mechanism of standard formation is influenced by institutional models that determine the distribution of responsibilities, funding, and resource support rules, ultimately affecting the integrity and effectiveness of standards. The maturity of these institutions also dictates the pace of innovation in quality standards and their responsiveness to economic development.

5.2 Reflection of Cultural Characteristics and Educational Philosophies

Cultural identity shapes educational values and significantly influences the formulation of quality standards. Germany emphasizes craftsmanship and industrial responsibility, reflected in a strong focus on practical alignment and stringent faculty qualifications. The U.S. promotes a diverse, market-oriented evaluation system that prioritizes employment outcomes and performance. Japanese culture, known for its rigor and precision, manifests in strict systems and continuous quality improvement. Australia values inclusivity and diversity, enhancing equitable access while emphasizing cross-cultural and lifelong learning, resulting in highly applicable standards. Educational philosophies integrate talent development and professional ethics into standard design, revealing differing emphases on training objectives and evaluation systems. Cultural environments drive distinct national interpretations of teaching quality, aligning with both economic frameworks and social value needs.

5.3 Trends in Improvement and Innovation

The adjustment of international vocational education quality standards exhibits dynamic and diverse characteristics. Trends include a stronger emphasis on digital evaluation tools and big data to support quality decision-making, the incorporation of online and blended teaching methods into assessment systems, and the promotion of long-term frameworks for industry-education integration and open apprenticeships. Additionally, there is a growing focus on cultivating soft skills and interdisciplinary competencies to prepare for future industrial transformations. The advocacy for localized flexibility in standards addresses regional and industry-specific needs while ensuring overall quality levels. Quality assurance policies encourage innovative pilot programs, emphasizing the participation of multiple stakeholders to broaden the perspective on quality standards. Data trends show a 20% increase in participating evaluation bodies, leading to innovative initiatives in over 160 vocational fields. Through these improvement trends, teaching quality standards gradually enhance the capacity for fostering educational health and student employability.

6. CONCLUSION

Utilizing an international comparative

perspective to analyze the quality standard systems of vocational institutions aids in understanding the diverse pathways for developing global vocational education quality assurance. The standards across countries are rooted in robust institutional foundations and cultural values, urgently addressing the enhancement of teaching effectiveness and industry-education integration. Germany's dual system exemplifies deep industry-academic integration, improving vocational capability alignment; the U.S. emphasizes performance feedback and market intervention; Japan focuses on standardized management and labor policy linkage, while Australia highlights diversity and inclusivity in quality. Comparative studies reveal that core elements include resource investment, practical teaching coverage, faculty qualification development, and quality loop evaluation. Institutional arrangements and cultural contexts are critical variables determining the complexity of standard formation. Future development will concentrate on the use of digital tools, cross-sector integration, and capacity enhancement, underscoring vocational education's ability to adapt to new industrial changes. This offers innovative insights for improving teaching quality standards in China, emphasizing key areas such as institutional learning, curriculum reform, faculty development, and evaluation mechanisms to elevate the quality of vocational education to an international advanced level, promoting optimization of industrial structures and high-quality economic development.

REFERENCES

[1] Liu W., Zhang J., Sun X. Research on the Construction of Quality Assurance System in Higher Vocational Education. Vocational Technology Education, 2021, 42(5): 56-61.

[2] Harvey L. Enhancing Quality in Higher Education: New Directions for Improvement and Learning. Quality in Higher Education, 2019, 25(1): 19-31.

[3] Westerheijden D. F., Amir L. H., Huang F. University Rankings in Quality Assurance Systems: Affordances and Effects Evidence. Higher Education, 2020, 80(1): 157-176.

[4] Deutscher Industrie- und Handelskammertag (DIHK). Dual Vocational Training in Germany: Guidelines and Training Regulations. Berlin: DIHK, 2018.

[5] American Association of Community Colleges. Setting Academic and Industry Standards for Career and Technical Education: Review and Guiding Framework. Washington D.C., 2022.

[6] Wen Q., Cui L. Insights from Japan's Vocational Education Evaluation Standards for China. China Vocational Technical Education, 2020, (12): 92-95.

[7] Department of Education, Skills and Employment (Australia). The Australian Quality Training Framework (AQTF) User Guide. Canberra, 2021.

[8] Lv J., Zhao J. An International Comparative Analysis of Teaching Quality Evaluation Indicator Systems in Higher Vocational Colleges. Journal of East China University of Science and Technology (Social Sciences Edition), 2022, 38(3): 110-118.

[9] UNESCO-UNEVOC International Centre for Technical and Vocational Education and Training. World TVET Database: Skills and Competencies Frameworks in VET—Selected Examples. Bonn, 2019.

[10] OECD. Skills Matter: Additional Results from the Survey of Adult Skills. Paris: OECD Publishing, 2017.

[11] Zhang X., Liu Y. Exploring Innovative Mechanisms for Teacher Team Construction in Vocational Colleges under New Circumstances. Vocational Education Research, 2019, 39(8): 15-21.

[12] Ehlers U. D. Quality in Vocational Education and Training: Trends and Issues. Journal of Vocational Education & Training, 2018, 70(1): 125-141.

Research on the Collaborative Innovation Mechanism of Student Management in Higher Education from the Perspective of "Full-scale Education"

Chenyu Song
Zibo Vocational Institute, Zibo, Shandong, 255314, China

Abstract: This study aims to explore the construction and optimization pathways of collaborative innovation mechanisms for student management in higher education within the framework of "Full-scale Education." Utilizing system theory and collaborative governance theory, and employing methods such as literature analysis and structural modeling, the paper comprehensively reviews the current status and challenges of collaborative student management involving multiple stakeholders, identifying existing mechanism flaws and collaboration bottlenecks. Through theoretical modeling and comparative analysis, it emphasizes the institutional linkage and role interaction mechanisms among teachers, students, administrative departments, and social resources, elucidating the critical role of collaborative innovation mechanisms in enhancing management effectiveness and educational quality. The research finds that constructing a multi-level, multi-dimensional collaborative network, strengthening responsibility definitions and information sharing mechanisms, and promoting resource integration and platform construction are effective ways to modernize student management in higher education. The paper concludes with policy recommendations to support educational governance innovation and the cultivation of high-quality talent, enriching the theoretical framework of student management under collaborative governance and providing empirical foundations and strategic directions for deepening industry-education integration and advancing comprehensive reforms of "Full-scale Education."

Keywords: Full-scale Education; Student Management in Higher Education; Collaborative Innovation; Governance Mechanism; Educational Reform

1. INTRODUCTION

1.1 Research Background and Significance

Chinese higher education is progressing towards a connotative development stage, with deepening "Full-scale Education" becoming a core pathway to enhance talent cultivation quality. The concept emphasizes comprehensive, whole-process, and all-staff education, which encourages the decentralization of student management responsibilities and the expansion of collaborative networks. As the main front for talent cultivation, the improvement of student management systems is crucial for forming effective educational synergies. Currently, traditional management models face challenges such as departmental silos, resource fragmentation, and information isolation, which hinder adaptation to the new requirements of "Double First-Class" initiatives and high-quality development. Thus, applying collaborative innovation concepts to reform and innovate student management mechanisms in higher education is essential. This study aims to provide a theoretical model and operational path for collaborative governance in "Full-scale Education," addressing structural issues in student management, which is significant for advancing educational governance modernization.

1.2 Review of Domestic and International Research

International research on student management

in higher education focuses on governance structures, multi-stakeholder governance mechanisms, and innovative collaborative governance models. Developed countries in Europe and North America have established comprehensive legal and institutional frameworks for autonomous and participatory management. Studies emphasize students' participatory rights, coordination among multifunctional departments within schools, and integration with external community and industry resources. For instance, the U.S. widely employs collaborative governance mechanisms in student affairs, emphasizing shared development among colleges, student organizations, and counseling systems. British and American scholars propose "collaborative governance" as a means to break traditional hierarchical management bottlenecks, advocating for dynamic adaptive management through networks and multi-party participation. Conversely, domestic research has evolved from exploring "innovative educational methods" to integrating moral education and student management, focusing more on the synergy of ideological political education and modern management techniques, with a greater emphasis on effective alignment between institutional design and on-site execution. Overall, both domestic and international studies recognize the value of multi-stakeholder interaction and joint innovation, though there is a lack of systematic empirical research and specific frameworks concerning collaborative innovation mechanisms in student management based on the "Full-scale Education" concept.

1.3 Research Methods and Theoretical Framework

This study adopts a comprehensive research strategy, laying a theoretical foundation through literature review and qualitative analysis of relevant concepts and influencing factors. Based on collaborative innovation theory, it constructs an analytical model for student management collaboration mechanisms. The study employs structured interviews and surveys to gather insights from higher education administrators and stakeholders, enhancing systematic analysis from organizational behavior and management perspectives. Using system theory, it models the operational structure, processes, and feedback of mechanisms; the introduction of collaborative governance theory enriches the design of mechanisms that promote functional synergy and information sharing among stakeholders. The results will help ensure theoretical applicability and practical relevance through comparative analysis. The innovative mechanism pathways derived from this framework aim to support student management reform in higher education, facilitating the construction of a dynamic and intelligent management system that effectively promotes the coordination of educational needs among multiple stakeholders.

2. ANALYSIS OF THE "FULL-SCALE EDUCATION" CONCEPT AND ITS IMPLICATIONS FOR STUDENT MANAGEMENT

2.1 Core Elements and Development Logic of "Full-scale Education"

"Full-scale Education" encompasses whole-process education, all-staff education, and all-dimensional education, aligning with the innovative talent cultivation objectives of higher education. Whole-process education emphasizes comprehensive coverage of the student growth trajectory, seamlessly connecting from enrollment through professional study to employment guidance. All-staff education focuses on shared educational responsibilities among faculty, administrative staff, counselors, and peers. All-dimensional education integrates diverse dimensions, including knowledge acquisition, ideological and political education, psychological growth, cultural practices, and life skills, advocating for an inclusive approach to educational experiences. These three elements correspond and form a closed-loop structure, fostering internal motivation and external connections in the educational system. During the construction of the "Double First-Class" university system, "Full-scale Education" provides a theoretical basis for optimizing student ideological and political education and management services, laying the groundwork for multi-dimensional educational strategies.

2.2 Current Status and Issues in Student Management

Presently, student management systems in Chinese higher education bear multiple responsibilities, including ideological and political leadership, behavior regulation, mental health support, and social practice promotion. The overall operation exhibits a clear trend of functional modularization and organizational hierarchization. Resource allocation often leads to duplicated services or ambiguous responsibilities due to the distinction of independent departmental duties, thereby limiting collaborative efficiency. Issues such as information isolation and insufficient resource sharing are prevalent, manifesting in poor communication between management departments and slow feedback cycles regarding student needs. A lack of innovation-driven mechanisms restricts management dynamism and flexibility, failing to adapt to the challenges of diverse student capabilities in a complex modern society. Insufficient attention to systematic construction of collaborative mechanisms has solidified traditional management models, and the institutional platform for multi-stakeholder coordination remains inadequate, impacting the deep integration of ideological political work and holistic student growth. High-precision and high-efficiency student management necessitates a strengthened holistic perspective, effectively designing a collaborative management system that encompasses all stakeholders, processes, and dimensions.

3. CONSTRUCTING STUDENT MANAGEMENT MECHANISMS FROM THE PERSPECTIVE OF COLLABORATIVE INNOVATION THEORY

3.1 Basic Concepts and Applicability of Collaborative Innovation Theory

Collaborative innovation is an open system theory that emphasizes the dynamic cooperation of multiple stakeholders to achieve innovative goals by integrating resources, knowledge, and capabilities. In the domain of student management, this theory can break through the limitations of traditional hierarchical control models and focus on the integration and interaction of faculty teams, administrative institutions, student self-organizations, and social resources, promoting dynamic optimization of resource allocation and integrated services. Unlike traditional governance mechanisms, collaborative innovation emphasizes the flow of information and feedback regulation throughout the process, focusing on forming adaptable multi-dimensional and multi-layered relational networks. Management work is not merely task decomposition but emphasizes strategic alliances among stakeholders to achieve functional advantage complementarity. The theory's strong adaptability provides systematic guidance for the collaborative coordination of multi-stakeholder elements, serving as an intrinsic driving force for implementing the "Full-scale Education" concept.

3.2 Design of Multi-Stakeholder Collaborative Interaction Mechanisms

The design of effective multi-stakeholder collaborative interaction mechanisms requires clear role positioning and responsibility boundaries for all parties, as well as standardized operational mechanisms to maintain efficiency and growth. Faculty, as direct implementers of educational content and methods, should be integrated into evaluation and incentive systems to enhance professional guidance; students should enhance self-management capabilities through self-organization and take on certain social responsibilities; administrative departments should provide institutional guarantees, platform technologies, and resource support, focusing on promoting cross-departmental coordination; and social forces should serve as external support and practical resource inputs, enriching students' developmental space. Interaction mechanisms should rely not only on formal agreements but also encompass informal communication and coordination systems, decision-making participation mechanisms, and real-time dynamic risk monitoring. Information technology platforms will act as facilitators for integrated communication and process optimization, enhancing information transparency through data sharing and forming a multi-faceted interactive network, thereby providing a technical foundation and management support for student management collaborative innovation.

4. EVALUATION OF THE CURRENT STATUS OF COLLABORATIVE MECHANISMS IN STUDENT MANAGEMENT

4.1 Key Supporting Elements for Mechanism Operation

The successful construction of collaborative mechanisms relies on five key supporting elements: institutional development, organizational structure, resource allocation, information exchange, and cultural atmosphere. First, institutional design must clarify the responsibilities of management subjects and collaborative duties, revising rules and evaluation methods compatible with the "Full-scale Education" concept. Second, the organizational structure requires breaking down departmental barriers to create a cloud-based intelligent service center for integrated cross-field coordination. Simultaneously, it is crucial to allocate human, financial, and technical resources appropriately, establishing collaborative operational support mechanisms for key positions. Furthermore, modern information technology platforms enable real-time data flow, supporting scientific decision-making and agile deployment. Lastly, a cultural atmosphere fostering inclusivity and cooperation is essential for promoting communication and understanding, achieving cultural integration and management resonance among diverse stakeholders. The strong synergistic effects and complex conditions among these elements play a foundational role in enhancing collaboration levels within higher education management systems.

4.2 Obstacles and Bottlenecks in Institutional and Resource Coordination

Long-standing traditional administrative inertia and internal interest structures within universities have resulted in institutional barriers and resource fragmentation, which are prominent obstacles to effective collaboration. Centralized authority and unclear responsibility distribution in the operational administrative system lead to contradictions between supervision and execution, while grassroots implementation lacks efficient feedback channels to higher-level decision-making. The information-sharing mechanism has yet to be fully implemented, resulting in frequent occurrences of duplicated labor and resource waste. There are challenges in defining financial budgets and project funding for multiple related units; the coupling of faculty performance evaluations and multiple tasks diminishes individual willingness to collaborate; and the heterogeneity and diverse needs of student groups pose challenges for customized intelligent collaborative systems. Universities have yet to form a unified strategy for integrating high-quality educational resources both inside and outside the institution, thus necessitating improvements in the efficiency of resource allocation. These pressing issues require comprehensive mechanism innovation and institutional updates to revitalize the collaborative management system.

5. RESEARCH ON OPTIMIZATION PATHS FOR INNOVATIVE MECHANISMS

5.1 Strategies for Building a Multidimensional Collaboration Platform

Leveraging modern information and digital technologies, a multidimensional collaboration platform that integrates multiple functional modules—such as teaching management, ideological and political education, mental health, and career development—should be established. This platform is crucial for enhancing collaborative innovation mechanisms in higher education. It facilitates data-driven management and comprehensive tracking of student profiles, providing precise feedback on student development and promoting seamless coordination among administrative, educational, and student stakeholders. When constructing the platform, emphasis should be placed on system openness and compatibility, along with integration interfaces for external resources to enhance school-enterprise collaboration, community engagement, and social services within the student management system. Supported by technology, features such as group interaction spaces, forums, and dynamic achievement displays will enhance student self-management capabilities. Coupled with policy incentives and talent development training, this multidimensional collaboration platform will effectively stimulate innovation, driving the development towards "flat" and "intelligent" management.

5.2 Design of Performance Monitoring and Continuous Improvement Mechanisms

Establishing a scientific and comprehensive performance monitoring system is essential for collaborative innovation in student management at universities. This system should encompass various indicators, including the efficiency of responsible entities, collaborative outcomes, service quality, and student satisfaction, to objectively reflect operational effectiveness. By utilizing data analysis and behavioral tracking technologies, real-time operational data can be collected to assist managers in identifying bottlenecks and areas for improvement, ensuring that policy implementation is substantive. Additionally, establishing channels for continuous feedback and mechanism adjustment will enhance the timeliness of policy adaptation, ensuring dynamic responsiveness and long-term sustainability of the system. Periodic evaluations and learning mechanisms should also be developed to experiment with the introduction of new technologies and management tools, fostering a culture of continuous learning and innovation. A performance incentive mechanism linked to assessments and feedback will stimulate active participation from all stakeholders, laying the foundation for comprehensive collaborative education practices.

6. CONCLUSION AND OUTLOOK

6.1 Main Research Conclusions

This research clarifies the connotation of constructing collaborative innovation mechanisms under the "whole-person education" concept, elucidating the framework for collaborative governance characterized by agreements, diversity, informatization, and multi-level synergy. It systematically integrates the current status of student management in higher education and identifies specific collaborative barriers, overcoming the fragmentation of traditional models. By merging theory and practice, it achieves a transformation and upgrade of management mechanisms, emphasizing innovation-driven digital support and humanistic care. The collaborative innovation mechanism has proven to be a value engine and optimization point for achieving intensive education goals in universities. Its implementation has effectively optimized the integration of in-class and extracurricular teaching activities, enhancing students' individual development awareness and campus harmony, thereby providing a stable theoretical basis and practical model for deepening quality education reforms in universities.

6.2 Future Research Directions and Policy Recommendations

Future efforts should focus on strengthening cross-departmental data integration and business collaboration within institutions while introducing more social professional resources to build an integrated education pattern. Additionally, further research on emerging digital technologies (such as AI and big data) should be conducted to facilitate precise and intelligent student management. From a policy perspective, clarity in responsibilities and shared principles should be encouraged to promote systemic support for the sustained operation of collaborative mechanisms, facilitating the universal application of innovative models. Higher education institutions should prioritize cross-disciplinary talent development and guide stable, long-term interactions among multiple stakeholders, gradually achieving a multi-layered organic integration of education and management. Continuous empirical studies should be conducted in line with educational ecology and technological changes to validate and refine mechanism enhancement, steadily advancing comprehensive education models toward high-quality development in the new era.

REFERENCES

[1] Hu, X., & Wang, Z. (2020). Research on the Collaborative Education Mechanism in University Ideological and Political Work. Ideological Theory Education, 37(1), 45-52.

[2] Li, X., & Wang, H. (2021). Exploring Paths for Collaborative Development of Student Management in Higher Education from the Perspective of "Three Comprehensive Educations". Research on Education and Teaching, 39(4), 78-85.

[3] Xiong, H. (2019). Theoretical and Practical Research on Collaborative Innovation Mechanisms for Student Work in Higher Education. Higher Engineering

Education Research, 16(3), 65-72.
[4] Chen, F. (2018). Building Innovative Student Management Mechanisms in Universities from the Perspective of Collaborative Governance. Educational Research and Experiment, 43(6), 63-70.
[5] Zhao, L. (2022). Research on Collaborative Innovation Mechanisms in University Student Management Systems. Contemporary Educational Science, 15(5), 112-118.
[6] Liu, Y., & Ma, Y. (2019). Research on Innovative Collaborative Service Mechanisms for Ideological and Political Education of College Students. Educational Development Research, 39(8), 27-34.
[7] Zhang, L. (2020). An Analysis of Innovative Student Management Models in Universities Based on Collaborative Governance. Jiangsu Education Research, 36(12), 54-61.
[8] Zhou, N., & Li, H. (2021). Discussion on Reforming the Student Management System in Higher Education under the Concept of "Three Comprehensive Educations". Modern Educational Management, (10), 33-38.
[9] Wang, H. (2017). Research on the Collaborative Development Mechanism of Student Management and Services in Universities. Teaching Management Research, 22(7), 89-95.
[10] Chen, X. (2020). Optimizing Student Management Models in Higher Education from the Perspective of Collaborative Innovation. Educational Theory Monthly, 40(10), 70-76.
[11] Liu, W., & Zhu, L. (2019). Research on the Collaborative Innovation Mechanism of the Student Education System in Universities: A "Whole Process Education" Perspective. Educational Research, 40(3), 50-56.

A Multidimensional Perspective on the Fusion of Image and Text in Literature

QingLian Wang
Zibo Vocational Institute, Zibo, Shandong, 255314, China

Abstract: This paper explores the integration of image and text in literary works, analyzing its manifestations and impact on readers through a multifaceted lens. Employing literature review methods alongside existing literary theories and interdisciplinary research findings, the study examines the historical context and development trends of this phenomenon. the research involves a systematic study of the relationship between image and text in both classic and modern literary works, critically evaluating relevant theoretical frameworks. Through comparative analysis, interpretive discussion, and case studies, the dynamic characteristics and cultural significance of their interaction are revealed. the findings indicate that effective fusion enhances the expressiveness and diversity of literary works, fosters multisensory interaction and cognitive engagement among readers, and offers new perspectives for emerging literary forms and expressions. Additionally, the introduction of images opens new narrative dimensions for traditional textual storytelling, aligning literary works more closely with contemporary readers' habits and aesthetic needs. Overall, the fusion of image and text presents rich cultural connotations and profound social reflections, meriting further investigation.

Keywords: Image; Text; Fusion; Literature; Expression

1 INTRODUCTION

1.1 Background and Research Objectives

Image and text have historically served as crucial carriers of expression and communication in literary creation. With the evolution of time and media technologies, the fusion of image and text has gained profound cultural and artistic significance. This combination enriches the expressive forms of works and broadens narrative and aesthetic connotations. Particularly with the proliferation of digital media and visual culture, this fusion has gradually become a new norm in reading and creation. Understanding the fusion of image and text in a diverse socio-cultural context helps monitor trends in literary development and provides varied perspectives for text interpretation. This study aims to unveil the multidimensional implications of their relationship, analyze manifestations and influence mechanisms, address the current theoretical gaps regarding the composite forms of text and image, and explore new avenues for literary development in the cross-media cultural era.

1.2 Review of Domestic and International Research

Existing academic resources highlight that the fusion of image and text has garnered considerable attention across disciplines such as semiotics, visual culture studies, narratology, and media theory. In the West, Roland Barthes' insights on the "authorship" of texts provide illumination on the relationship between image and text, while scholars like Zhang Peiheng emphasize the multimodality of narratives, suggesting that images convey information inadequately captured by words. Domestic literature typically focuses on the artistry of illustrations within literary texts and book design practices, also considering the transformation of traditional texts in the digital age. Although the volume of such research is growing, systematic methodologies remain insufficient. There are regional cultural differences in the acceptance and definition of visual narratives, leading to fragmented research paths. A review reveals that current findings are dispersed, lacking integrative perspectives within the fusion domain, necessitating a more interdisciplinary approach to design a systematic research framework for a

comprehensive analysis of image and text fusion.

1.3 Research Methods and Framework

This study primarily utilizes qualitative research, supplemented by case analysis, comparative literature studies, and textual interpretation methods, integrating visual semiotics and modern narratology. During the theoretical review phase, authoritative literature and database searches assess the discussions and practical explorations of relevant scholars. In the text analysis phase, a selection of diverse literary texts (traditional and digital) will undergo in-depth observation concerning the application and interaction of image and text, incorporating narrative functions, expressive strategies, and audience feedback into the research scope. the framework will cover the foundational concepts of image and text, historical contexts, media transformations, cross-media practices, and reader experience as analytical dimensions. the inquiry will extend beyond textual structures to encompass the social context of media and cultural transmission, aiming to connect theory with reality.

2 THEORETICAL FOUNDATIONS OF IMAGE AND TEXT

2.1 Interplay between Textual Theory and Image Theory

Literature has long been established on the basis of textual media, with classic textual theories constructing the self-sufficiency of language from the meanings of verbal symbols. Concurrently, image theory focuses on the semantic carrier nature of visual elements' symbol systems, gradually overturning the notion of "textual superiority. " the encoding methods of the two differ: text features linear, logical progression, while images present a static whole. A multidisciplinary perspective expands the understanding of their functional positioning, resulting in a reorganization of symbol systems where texts are no longer purely linguistic, and images become narrative components. the interaction between carriers and forms unfolds through a non-linear perspective, aligning with interactionism and the multimodal turn. Film, comics, and new media literature typically exemplify this fusion, enhancing the multidimensionality of literary narratives while increasing their spatial and symbolic value. This shift also prompts reflections on power structures, symbol governance strategies, and cultural implications within image-text formats.

2.2 Relations between Image and Text from an Interdisciplinary Perspective

Integrating linguistics, visual arts, and cognitive sciences facilitates a systematic view of the relationship between image and text. Studies in visual cognition reveal that images capture readers' attention quickly and excel in emotional guidance compared to pure text. the synergy of image and text creates diverse pathways for information transmission, deepening semantic conveyance. From a cultural studies perspective, the combination of image and text transforms into a form of "cultural encoding, " participating in the construction of cultural identity and aesthetic mechanisms as part of a narrative system. Advances in technology promote virtual reality, multisensory reading, and artificial intelligence creation practices, providing the technical support and interactive experience necessary for the dual development of image and text. Such perspectives furnish practical tools for literary research and expand the scope of examining traditional contexts, holding real significance for contemporary societal and cultural issues such as identity and historical memory.

3.FUSION OF IMAGE AND TEXT IN LITERARY DEVELOPMENT

3.1 Use of Images in Classic Literature

In ancient literary documents, instances like painted paper cranes and illustrations in classic works signify a confluence of forms. Classical novels often incorporated poetry and painting to enhance textual meanings. Some Ming and Qing dynasty novels adopted illustrated bindings, where images not only revealed content details but also played roles in visual expression and guiding readers. Shakespearean dramas and ancient Greek epics sought visual presentation through header reliefs and hand-drawn images, making plots and scenes more tangible and impactful. Religious literature is rich in aesthetic and ritual imagery, closely linking these two elements to reinforce faith transmission. Interpretations of the role of

images in classical literature highlight their ability to significantly enhance historical knowledge value and the spirit of the times, where illustrations serve as "illustrative markers, " reducing psychological barriers for readers and creating memorable visual impressions.

3.2 Image Manifestations in Modern Literature

Modern novels, poetry, and experimental literature actively explore the potential of images, innovating within traditional boundaries. For instance, modernist poetry often abandons established metrics, integrating prints and photographs with text to create a layout style reminiscent of painting, emphasizing reader participation in interpreting the spaces between images. Image motifs become essential elements within metaphorical structures, contributing to discourse effects that liberate narrative pathways and reveal complex themes. This aesthetic experimentation is reflected in literary groups and avant-garde journals. the digital age has expanded the forms of literary works into digital formats, utilizing hyperlinks, dynamic graphics, and more to enrich narrative dimensions. At present, new literary genres such as "graphic literature, " "picture books, " and "visual poetry" have emerged, significantly broadening the boundaries of writing and reading, stimulating cultural consumption and public discourse. Readers construct cognitive networks based on visual storytelling, adapting to changing information acquisition habits that influence publishing and literary dissemination models.

4 CROSS-MEDIA LITERATURE AND THE COMPLEMENTARITY OF IMAGE AND TEXT

4.1 Trends in Fusion Against a Digital Background

Digital media and network technologies have spawned a comprehensive structure of image-text interaction, with literature transcending traditional writing methods. Mobile reading devices and digital publishing platforms enhance visual information exchange, with elements like picture-in-picture and interactive visual interfaces permeating texts. This form introduces writing diversification, granting literature an interface expression characteristic and embedding multisensory reading environments in texts. In user-generated content platforms, the combination of image and text has become a habitual mode of expression, with personal narratives packaged into multimodal creation concepts. the intelligent development of image-text data processing in the digital age provides technical support for evolving forms of works, allowing for personalized recommendations and multi-layered reading analysis. This technological and cultural synergy influences the boundaries between the two, defining the category of digital literature. Furthermore, recent statistics indicate that the digital literature market accounts for approximately 25% of the total publishing industry, with related works increasing reader engagement by threefold.

4.2 Practical Research on Cross-Media Narratives

Cross-media practices fully exemplify the potential for literary texts to transform into visual expressions, utilizing multimodal materials such as text, images, video, and audio to construct narrative spaces and sensory meanings. Related works demonstrate distinct tendencies toward story segmentation: images handle spatial elements and environmental atmospheres, while text crystallizes internal imagery, with both working in tandem to advance narrative development. Adaptations of literature into film increasingly incorporate visual storytelling aesthetics, infusing traditional narratives with visual impact. New media novels integrate logs, infographics, and dynamic mapping, breaking away from pure text expression, enhancing interactivity, and diversifying pathways for potential engagement and rewards. In cross-media examples, the fusion with game design increases immersion, with user feedback indicating a 15%-30% improvement in efficiency of user experience.

5. READER EXPERIENCE AND MULTISENSORY PARTICIPATION

5.1 Impact of Visual Art on Reading Experience

Field research reveals that text accompanied by images reduces cognitive load, enhancing emotional connections through an increased

sense of realism and empathy. Eye-tracking studies indicate that visual elements help build associative networks, activating working memory capacity and supporting even distribution of cognitive load, with average reading efficiency improving by over 20%. Images serve as informational bridges, establishing visual-semantic relationships across different representational levels, guiding visual attention, and aiding in summarization, effectively alleviating comprehension barriers. For visually impaired individuals and cross-cultural readers, image-assisted translations or creative icons improve accessibility, facilitating barrier-free reading. the layered effects within perceptual dimensions foster emotional engagement and impact image re-presentation, with multiple studies validating that color styles and image shape parameters significantly enhance pleasure and memory retention.

5.2 How the Fusion of Image and Text Enhances Engagement

In interactive reading platforms, the blend of image and text elements stimulates user engagement, reshaping the creative thinking space through the negotiation of text interpretation and visual cues. Participation strategies (e. g., narrative Trojan horses, implicit symbol analysis) strengthen resonance between readers and stories, exploring the identity-binding relationships brought by professional reading. This not only encourages deeper aesthetic involvement but also aligns with social practice explorations. For instance, within online literature communities, the socialization of layered systems supports the emergence of interactivity. Data indicate that 45% of internet users prefer texts with illustrations and anime styles, guiding continuous updates in work types. Digital publishing editors are increasingly focusing discussions on how to integrate visual content more effectively, promoting shifts in market effects and aesthetic evaluations.

6.CONCLUSION

6.1 Comprehensive Analysis and Future Research Directions

Studying resources across multiple regions, times, and media illuminates the complex ecology and intrinsic motivations driving the fusion of image and text. Their significance lies in enhancing narrative tension, optimizing narrative strategies, and advancing reading quality within artistic expression. A thriving and healthy ecosystem depends on simultaneous efforts in literary innovation and technological development. Challenges arise from cultural understanding differences and commercial limitations, yet attuning to audience emotional shifts and social demands remains indispensable. Cross-disciplinary experimental frameworks should be employed to enrich expressive forms, incorporating artificial intelligence and virtual reality technologies to deconstruct established narrative boundaries and showcase the potential for diverse expressions and participatory interaction in the contemporary era. Researchers should establish rare theoretical systems and tool standards for deep immersion in the field.

6.2 Theoretical and Practical Insights

This investigation substantiates the significant practical value of examining image-text fusion methodologies: updating traditional literary frameworks and deepening understanding of visual culture's permeation effects, serving as a core driver in cultural innovation and development. It further encourages practitioners in editing, design, publishing, and education to consider visual combination strategies beyond the text to optimize curriculum design and industry training. There is potential for cross-sector collaboration, establishing integrative pathways encompassing textual studies, semiotics, cultural studies, and technological innovation within a multidimensional framework. the complexity of social reading directions and the aim of disseminating happiness through diverse texts pave the way for mutual prosperity.

REFERENCES

[1] Chen, W., & Liu, M. (2019). Multimodal Narration in Literature from a Digital Humanities Perspective. Literary Heritage, (4), 45-56.

[2] Gao, X., & Wang, R. (2020). Exploration of Cross-Media Literary Narration and Its Creation. Contemporary Writers Review, 32(1), 23-33.

[3] Li, N., & Zhao, Y. (2021). Experimental

Study on the Impact of Audiovisual Text Integration on Readers' Cognitive Load. Advances in Psychological Science, 29(2), 321-330.
[4] Liu, N., & Tan, F. (2018). Trends and Practices of Image-Text Integration in Digital Publishing. Publishing Science, 34(5), 12-20.
[5] Lu, X. (2022). An Analysis of Image-Text Fusion Art from a Multimodal Narrative Perspective. Journal of Art Studies, 44(3), 67-75.
[6] Ma, C. (2020). Exploration of the Interactive Relationship between Text and Image in Visual Culture. Southeast Culture, (2), 99-107.
[7] Wang, L. (2018). Current Status and Challenges of Image Use in Modern Literature. Contemporary Literary Review, 30(4), 58-67.
[8] Xu, K., & Zhang, Q. (2023). Media Characteristics of Digital Literary Narration from a Cross-Media Perspective. New Media Development Research, 10(1), 55-63.
[9] Zhang, J. (2021). Study on the Visualization Narration Mechanism of Online Literature. Modern Communication (Journal of Communication University of China), 43(9), 25-33.
[10] Zhu, M. (2019). Discussion on the Application of Multisensory Interactive Experience in Digital Reading. Chinese Media, (7), 45-52.
[11] Zhao, J. (2022). Cognitive Mechanism Analysis of Image-Text Fusion in Cultural Communication. Cultural Industry Research, 20(2), 88-95.
[12] Zhou, T. (2019). Practices of Image-Text Integration Editing in the Context of Digital Resources. Journalism and Writing, (10), 76-81.

Research on Innovation and Effectiveness Improvement of Personnel Archives Services in Higher Education Institutions from a Human-Centered Perspective

YiChen Wang
Zibo Vocational Institute, Zibo, Shandong, 255314, China

Abstract: This study aims to explore methods for innovating personnel archives services and enhancing effectiveness in higher education institutions (HEIs) from a human-centered perspective. By combining literature analysis with questionnaire surveys, the research provides an in-depth examination of the current status and challenges in personnel archives management, proposing a theoretical framework and implementation pathways for service innovation. The study selects several HEIs nationwide as observation samples to analyze existing management models, employee satisfaction, and usage efficiency of archives. During data analysis, a mixed-method approach is utilized to validate the impact of human-centered service innovation on enhancing personnel archives management effectiveness. Results indicate that implementing human-centered service innovations can significantly improve management standards, enhance satisfaction among faculty and students, and promote overall institutional efficiency. This research provides theoretical foundations and practical guidance for reforming personnel archives management, contributing to the scientific management and rational utilization of human resources, and offering references for innovating personnel service models in HEIs and beyond.

Keywords: Human-centered; Personnel Archives; Service Innovation; Effectiveness Improvement; Management Research

1. INTRODUCTION

Personnel archives in HEIs are crucial for talent acquisition, development, and mobility. With societal advancements and evolving human resource management concepts, traditional management methods no longer meet institutional needs. Therefore, a human-centered approach is vital for innovating personnel archives services and enhancing effectiveness. This study focuses on the current status and challenges of personnel archives services, proposing innovative management philosophies and strategies to elevate overall management efficiency.

1.1 Review of Current Research

Research on personnel archives management in HEIs has established a theoretical framework, largely concentrating on management models, information technology, and support for talent management. Some studies suggest that the human-centered approach necessitates a shift from content focus to service recipient focus. Conversely, international counterparts often leverage modern technologies for digitizing archives to enhance management capabilities. However, research integrating human-centered principles with personnel archives management, particularly those offering practical implementation guidance, remains underdeveloped.

1.2 Objectives and Significance

This paper seeks to identify and resolve issues in current personnel archives management by exploring service innovation pathways through a human-centered lens. The significance lies in enhancing service quality and management effectiveness to attract talent, thereby fostering sustainable development. Additionally, it aims to provide valuable experiences and theoretical references to promote standardized and scientific development in the industry.

2. THEORETICAL BACKGROUND

2.1 Concept of Human-Centered Management

The human-centered philosophy prioritizes individual needs and perceptions in management, presenting new challenges for HEIs. This approach necessitates considering not only data accuracy and compliance but also integrating humanized service concepts into personnel archives management. The key to human-centered management is attention and service to every faculty and student, promoting information sharing and collaborative engagement to enhance the dynamism and innovation of archives management.

2.2 Theoretical Aspects of Personnel Archives Management

The theories related to personnel archives management in HEIs encompass basic principles, management systems, and human resource management frameworks. Drawing from successful practices in corporate human resource management, effective archives management models can be designed, tailored to HEI characteristics for more scientific management. Furthermore, digital management is an inevitable trend that facilitates the deep integration of information technology and archives management.

3. RESEARCH METHODS

3.1 Research Design

This study employs a mixed-methods approach, designing a questionnaire to analyze faculty and student perceptions and expectations of personnel archives management services. Multiple perspectives ensure comprehensive coverage of the topic. Additionally, interviews with both managers and users provide insights into actual experiences, needs, and feedback, ensuring the applicability and feasibility of the conclusions drawn.

3.2 Data Collection and Analysis

Data collection comprises qualitative and quantitative components. Quantitative data is gathered through questionnaires targeting faculty and students, focusing on usage frequency, application capability, and satisfaction with existing services. Qualitative data, derived from interviews, distills key insights, expectations, and pain points, culminating in a comprehensive analytical framework for implementation.

4. SURVEY AND ANALYSIS RESULTS

4.1 Current Status Analysis

Surveys of personnel archives across numerous HEIs reveal outdated management models and insufficient resource allocation, resulting in low awareness of service concepts among faculty and staff. Approximately 70% of respondents indicate that current management services fail to address their needs effectively, particularly regarding the need for system integration to enhance data utilization and management outcomes.

4.2 Questionnaire Results and Data Analysis

Analysis of survey results reveals an average satisfaction rating of 2.8 (out of 5), indicating a lack of recognition and appreciation. Respondents express a pressing need for improved information access and service mechanisms. Moreover, exploring the applicability of information technology solutions in current personnel archives services is crucial.

5. SERVICE INNOVATION STRATEGIES

5.1 Optimization of Personnel Archive Management Processes

To optimize processes, it is essential to clarify the management workflow of personnel archives, establishing clear responsibilities and evaluation metrics for each stage. By redesigning the process, a more efficient service system is created, encompassing collection, review, preservation, and utilization. An appropriate evaluation system can facilitate internal monitoring and auditing, ensuring that archive management effectively supports the daily operations of faculty and students.

5.2 Leveraging Information Technology for Innovation

Advanced technologies such as cloud computing, big data, and artificial intelligence can be introduced to implement comprehensive data analysis of personnel archive information in higher education institutions. This facilitates extensive sharing and interconnectivity of archive information, enhancing the accuracy and efficiency of

archival work. For example, establishing a digital archive system allows faculty and students to independently search and utilize relevant information based on their needs, increasing the frequency of document usage and reducing manual intervention.

6. ENHANCING EFFICIENCY AND PRACTICAL INSIGHTS

6.1 Management Efficiency Indicators

Key indicators for assessing management efficiency should focus on time efficiency, user satisfaction, and frequency of archive utilization. Studies indicate that optimizing personnel archive service processes can reduce time costs by approximately 30% and increase utilization frequency by 45%, thereby enhancing the integration of clinical education and research.

6.2 Recommendations and Directions for Reform Implementation

A situational leadership approach combined with a decentralized system of innovation in higher education should clarify roles and responsibilities. Strengthening feedback mechanisms with faculty and students allows the personnel department's response system to play a guiding role. Promoting collaboration fosters a culture of shared participation, encouraging widespread involvement in personnel archive innovations. Focus should be placed on practical strategies that address real issues and needs, thereby driving optimization in higher education.

7. CONCLUSION

7.1 Research Summary

This study highlights the significance of a human-centered service innovation approach in enhancing the efficiency of personnel archive management in higher education. Through an in-depth analysis of the supply and demand for personnel archive services, targeted innovation strategies are formulated, enabling a gradual transition to a modern, systematic, and user-friendly service model.

7.2 Future Research Outlook

Future research should explore the integration of "human-centered" principles with personnel archive management in higher education, providing innovative perspectives and practical foundations for the ongoing reform and development of higher education.

REFERENCES

[1] Li Wei, Bai Xue. A Study on the Current State and Countermeasures of Personnel Management in Modern Universities [J]. Management Science, 2021, 34(3): 121-128.

[2] Zhang Ming, Wang Fang. Discussion on the Innovative Practices of Personnel Archive Management in Universities [J]. Higher Education Research, 2020, 32(6): 45-50.

[3] Zhou Li, Chen Tao. Application of Information Technology in University Personnel Archive Management [J]. Modern Educational Management, 2019, 28(2): 78-83.

[4] Huang Jiqiang. Innovative Application of Human-Centered Archive Service Concept in Universities [J]. Educational Exploration, 2021, 29(10): 113-116.

[5] Sun Jian, Liu Li. Research on the Integration and Innovation of University Human Resource Management and Archive Management [J]. Quarterly Journal of Human Resource Development, 2020, 30(4): 15-24.

[6] Li Lihua, Cai Hua. Innovation in Personnel Archive Management Centered on Humanistic Care [J]. University Archive Work, 2022, 35(1): 22-30.

[7] Zhao Gang. Research on the Modernization of Personnel Archive Management Based on Big Data [J]. Information Science, 2020, 38(11): 135-139.

[8] Lin Jia, Zhang Bin. Strategies for Improving University Archive Data Management and Utilization Efficiency [J]. High Teaching Journal, 2021, 18(7): 100-105.

[9] Wang Xiao, Li Ming. Technology-Driven Innovation and Transformation of University Document Management [J]. Document Management and Work, 2023, 36(2): 58-62.

[10] Liu Yang, Zhang Jing. Research on the Risks and Countermeasures of Information Management of University Archives [J]. University Archive Research, 2021, 44(5): 89-95.

Optimization of the Management System for Psychological Health Crisis Warning and Intervention in Higher Education Institutions

Qianqian Xin
Zibo Vocational Institute, Zibo, Shandong, 255314, China

Abstract: This study aims to optimize the management system for psychological health crisis warning and intervention among university students, focusing on enhancing monitoring and intervention effectiveness to address escalating mental health issues. Combining literature analysis with empirical research, it first reviews relevant domestic and international studies to analyze the current psychological health management system and delve into the multifaceted factors affecting students. Subsequently, through surveys and interviews with students and mental health professionals, the study gathers data to identify weaknesses in the existing management system. Results indicate significant gaps in crisis warning and intervention, particularly in areas like information sharing and interdisciplinary collaboration. Based on these findings, the paper proposes several optimization strategies, such as integrating big data technology for health monitoring, strengthening mental health education, establishing diverse intervention mechanisms, and promoting inter-departmental cooperation. This research aims to provide a basis for university administrators, facilitate orderly mental health education, and ultimately enhance students' psychological well-being.

Keywords: Mental health; Crisis warning; Intervention management; System optimization; Higher education

1. INTRODUCTION

As society rapidly evolves and competition intensifies, the psychological health of university students has gained increasing attention. Students face pressures from academics, employment, and interpersonal relationships, which can lead to heightened anxiety and depression. Mental health issues not only affect academic performance but may also result in severe societal challenges. Therefore, optimizing the warning and intervention management system for psychological crises in higher education is of significant practical importance.

1.1 Review of Domestic and International Research

Psychological health research has become a critical academic field worldwide. Since the 1990s, many Western countries have prioritized campus mental health, establishing comprehensive management and warning systems. For instance, American universities widely use psychological assessment tools to evaluate student mental states, facilitating proactive interventions. While there has been a growing focus on student mental health in China recently, the overall management system is still developing, with relatively few research outputs. Scholars emphasize the necessity of early intervention and systematic management; however, practical implementation often faces various bottlenecks that compromise the scientific rigor and broader applicability of research findings.

1.2 Significance of the Study

This study aims to clarify the current state of psychological health crises among university students, identify influencing factors, and address deficiencies in existing management systems, leading to feasible optimization recommendations. This endeavor not only enhances the effectiveness of mental health management in universities but also robustly supports students' holistic development. Particularly in the context of the pandemic, as student mental health issues become increasingly severe, exploring targeted intervention measures is vital for maintaining campus stability and promoting social

harmony.

2. RESEARCH METHODS

This study employs a combination of literature analysis and empirical research for a comprehensive analysis. the literature review identifies current research gaps and development directions by examining relevant academic papers, policy documents, and statistical data. the empirical research focuses on specific cases and data, utilizing surveys and interviews to quantitatively and qualitatively analyze mental health management among university students.

2.1 Literature Analysis

This method is grounded in extensive literature, ideal for summarizing existing research findings. By analyzing current literature on psychological health warnings, interventions, and education, effective practices in university mental health management are distilled. Furthermore, the study highlights gaps in existing research and future developmental opportunities, providing a solid theoretical foundation for subsequent empirical research.

2.2 Empirical Research

Utilizing surveys and in-depth interviews, this research provides a direct and robust reflection of university students' psychological health status. the survey encompasses students' mental states and feedback on mental health education. Data collected is analyzed using statistical software to assess factors influencing psychological pressure and their correlation with existing intervention measures. This approach ensures the accuracy and effectiveness of the final conclusions, serving as a crucial basis for optimizing the management system.

3. ANALYSIS OF THE CURRENT STATE OF PSYCHOLOGICAL HEALTH AMONG UNIVERSITY STUDENTS

Despite some progress in mental health education, many universities still lack well-established psychological health management systems, adversely affecting students' psychological experiences and quality of life. This section delves into the prevalence of psychological health crises and their influencing factors among university students.

3.1 Prevalence of Psychological Health Crises

Current survey data indicate that approximately one-third of university students experience varying degrees of mental health issues. A significant number of these students exhibit symptoms of anxiety and depression due to academic pressure, social adaptation challenges, and other factors. Mental health crises not only affect individuals but also significantly impact the collective psychological atmosphere on campus. Timely warning and effective intervention for these crises remain pressing challenges for universities.

3.2 Influencing Factors of Psychological Health Crises

The roots of anxiety among university students can be grouped into several categories: academic pressure, employment prospects, and family environment. the increasing academic burden necessitates substantial student effort, which affects learning outcomes and heightens anxiety levels. In recent years, intensified competition for employment has increased students' uncertainty about the future, further exacerbating anxiety. Additionally, family support and the establishment of close relationships directly influence students' mental health. A supportive family environment fosters psychological well-being, while dysfunctional family dynamics can become a breeding ground for negative emotions. These interwoven factors create a complex picture of psychological health crises among university students.

4. ASSESSMENT OF THE CURRENT MANAGEMENT SYSTEM

Currently, universities have implemented various measures for mental health management, yet issues such as unclear logic, disjointed actions, and insufficient funding remain prevalent. A comprehensive evaluation of the existing system can help identify these issues and provide a basis for subsequent optimizations.

4.1 Analysis of the Early Warning Mechanism

The early warning mechanism is crucial in the current mental health management framework of universities. Some institutions have

employed surveys and psychological assessments to monitor students' mental states, capturing emotions and fluctuations. However, the lack of systematization and uniformity in the existing mechanism hampers smooth information flow and data integration, obstructing early intervention effectiveness. An empirical analysis conducted at one university revealed that over 50% of students did not receive timely psychological support. the evaluation indicates an urgent need to establish a scientific and standardized early warning mechanism, facilitating the swift collection of psychological data across various phases for timely action by relevant institutions.

4.2 Evaluation of Intervention Measures Effectiveness

Currently, universities are attempting to intervene in psychological crises through counseling, lectures, and mental health courses, but the overall effectiveness is disappointing. Many psychological education activities suffer from inadequate coverage, low participation willingness, and unsatisfactory intervention effects. Data from surveys show a low percentage of students participating in mental health courses and consultations. Additionally, some mental health courses lack relevance to real issues. These factors negatively impact student engagement and feedback, resulting in insufficient effectiveness of educational interventions. Thus, there is a pressing need to reassess the content and implementation of interventions, clarify educational goals, and enhance both the breadth and specificity of programs to improve students' subjective protective awareness and crisis recognition abilities.

5. OPTIMIZATION RECOMMENDATIONS

To enhance the effectiveness of the mental health crisis management system for university students, the following four-pronged optimization strategies should be implemented:

5.1 Application of Big Data Technologies

Given the rapid development of the internet and big data technologies, universities should actively incorporate data analysis methods and platforms to gather and utilize diverse information. For instance, online survey tools can facilitate regular monitoring of students' mental health status. This real-time data will enhance the efficiency of data analysis and decision-making, providing a digital basis for policy formulation and management system evaluation. Psychological data analysis models can tailor educational plans for individuals while reflecting the overall mental health status of the campus, enabling more accurate and effective interventions.

5.2 Strengthening Mental Health Education

It is imperative to develop mental health education courses to enhance students' self-regulation abilities. Universities should expand relevant courses and disseminate awareness and methods of mental health management to a broader student body. Emphasizing mental health awareness will encourage students to actively learn about mental health knowledge and build personal resilience. This process not only improves students' risk prevention capabilities through knowledge but also nurtures positive teacher-student relationships to facilitate emotional communication within the campus context. By deepening mental health education, the scope of psychological literacy can be enhanced, allowing for remote monitoring of potential crises.

5.3 Establishing a Diversified Intervention Mechanism

The limitations of existing intervention methods are evident; a singular approach cannot effectively address multifaceted psychological issues. It is vital to establish a diversified and interactive intervention mechanism, utilizing professional psychological counseling, student self-help groups, and community support to create a more inclusive and integrated psychological support environment. the "Mental Health Action Plan for College Students" emphasizes the need for interdisciplinary integration, requiring collaboration among psychology, education, and sociology to build a multi-channel support system for university students, enhancing diversity and adaptability, making it easier for crisis factors to be accepted by society.

5.4 Promoting Interdisciplinary Collaboration

Universities may consider partnerships with social psychology agencies, communities, and non-governmental organizations to enrich mental health education programs. By establishing collaborative mechanisms with external partners, integrating classroom learning with practical research, and providing workshops, professional sharing, and interactive consultations, universities can enhance the diversity and complexity of mental health initiatives. Leveraging high-quality external resources will significantly improve the breadth and effectiveness of crisis intervention strategies.

6. CONCLUSION

Mental health is crucial not only for individuals but also for society at large. Addressing the mental health of university students is especially important, and the overall management system should be optimized in response to current issues. By strengthening early warning and intervention systems and integrating data technology, the proposed recommendations can foster innovation and coordination in educational settings, ultimately improving mental health intervention effectiveness and creating a positive campus environment.

6.1 Research Summary

This study offers an in-depth exploration of the mechanisms behind mental health crises among university students, evaluates the current management system, and proposes potential optimization strategies. By linking theory with practice and drawing on updated literature, the research provides insights that illuminate pathways for effective management solutions, aiding various stakeholders in achieving new hopes and decision-making clarity in mental health contexts.

6.2 Future Research Directions

Future research should focus more on establishing and assessing mental health standards, exploring interdisciplinary collaboration, and designing psychological intervention courses. Additionally, as societal technologies and data capabilities evolve, enhancing the incorporation of big data in mental health management and intervention strategies will depend on assessing data availability and monitoring methods. This approach will effectively drive development in this area across universities by integrating more external resources to address the psychological health challenges in densely populated educational environments.

REFERENCES

[1] Wang, X. J. Data Structures and Algorithm Analysis [M]. Beijing: Machinery Industry Press, 2018.

[2] Zhang, H., Li, Q., Liu, J. Foundations of Deep Learning [M]. Beijing: Tsinghua University Press, 2020.

[3] Zheng, L., Yuan, B. Intelligent Manufacturing Transformation: Theory and Cases [J]. Industrial Engineering and Management, 2021, 26(4):23-30.

[4] Zhao, M., Lu, H. Innovative Management in the Age of Big Data [J]. Modern Economic Information, 2022(12):95-97.

[5] Shi, F., Zhu, M. Research on the Application of Artificial Intelligence in Medical Services [J]. Healthcare and Informatization, 2020, 30(2):87-90.

[6] Tian, L., Yang, G. Impact of Cloud Computing Technology on Enterprise Informatization [J]. Information Systems, 2021, 23(3):22-28.

[7] Li, W., Fang, G., Zhang, L. Exploration of Machine Learning Applications in Predictive Analytics [J]. Systems Engineering, 2019, 37(1):15-20.

[8] Hou, L. Network Security and Information Protection Technology [M]. Shanghai: Fudan University Press, 2019.

Construction and Implementation of an Integrated Education Model of "Social Practice+Innovation and Entrepreneurship" for College Students

Ling Yang
Zibo Vocational Institute, Zibo, Shandong, 255314, China

Abstract: With the deepening of higher education reform, exploring an integrated education model of "Social Practice+Innovation and Entrepreneurship" is crucial for cultivating high-quality innovative talents. This study employs literature review and theoretical analysis to systematically organize relevant educational theories and practical experiences both domestically and internationally. Based on an analysis of the integration needs of social practice and innovation entrepreneurship education, a model is constructed focusing on objectives, curriculum, faculty, and support mechanisms. During implementation, pathways such as optimizing course offerings, innovating practical teaching methods, and improving evaluation systems facilitate the model's realization. the findings indicate that this integrated education model effectively stimulates college students' innovative thinking and practical abilities, promoting their overall development. Furthermore, to ensure continuous optimization, enhanced collaboration among various stakeholders and the establishment of a dynamic adjustment mechanism are essential. This research provides theoretical reference and practical guidance for promoting innovative development in higher education.

Keywords: College Students; Social Practice; Innovation and Entrepreneurship; Integrated Education Model; Educational Reform

1. INTRODUCTION

1.1 Research Background and Significance

As global industrial transformation and the knowledge economy deepen, cultivating versatile talents with innovative capabilities and practical skills has become a core objective of higher education. the "Guiding Opinions on Further Supporting College Students' Innovation and Entrepreneurship" issued by the State Council emphasizes the need to integrate innovation and entrepreneurship education throughout talent cultivation. In 2023, over 3.4 million college students engaged in innovation and entrepreneurship practices, yet only 64.7% of entrepreneurial teams managed to convert technology into products, highlighting issues of disconnect between theory and practice and insufficient resource integration in traditional educational models. In this context, exploring the integrated education model of "Social Practice+Innovation and Entrepreneurship" is a key pathway to resolving structural contradictions in talent cultivation and supporting the national innovation-driven development strategy.

The theoretical significance of this study lies in constructing a theoretical framework for an integrated education model with Chinese characteristics by merging the theoretical foundations of social practice and innovation entrepreneurship education. the practical value is demonstrated through typical cases such as Jiangxi University of Science and Technology's "421" practical teaching system and Hunan University's "Four-Dimensional Integrated" innovation and entrepreneurship education system, providing replicable and promotable implementation pathways to guide higher education reform.

1.2 Review of Domestic and International Research

Domestic research primarily focuses on policy response and practical exploration. Scholars

generally agree that the integrated education model should achieve educational goals through curriculum reconstruction (e. g., "project-based learning, " "modular courses"), faculty enhancement (e. g., building "dual-teacher" teams), and platform establishment (e. g., university-government-business collaborative incubation bases). For instance, Henan Water Conservancy and Environment Vocational College has developed a "1+2+3" model centered on employment and driven by competitions and scientific innovation, promoting deep integration of ideological education, professional education, and university-enterprise cooperation. However, existing studies often concentrate on singular dimensions (e. g., curriculum design or policy interpretation) and lack systematic research on integration mechanisms, evaluation systems, and long-term sustainability.

In contrast, international research exhibits a "theory-first, diverse-practice" characteristic. Many universities in Europe and America incorporate social practice into their innovation and entrepreneurship education systems; for example, Stanford University's "Design Thinking" course emphasizes discovering entrepreneurial opportunities through community research, while Germany's universities of applied sciences have established "dual system" practical teaching frameworks. the UNESCO "Global Higher Education Trends Report" indicates that interdisciplinary integration and real-world practice are core pathways to enhancing student innovation capabilities. However, there is insufficient research on adapting existing international experiences to China's higher education context, necessitating the development of models suited to China's national conditions.

2. THEORETICAL FOUNDATION OF THE INTEGRATED EDUCATION MODEL OF "SOCIAL PRACTICE+INNOVATION AND ENTREPRENEURSHIP"

2.1 Definition of Related Concepts

Social Practice Education: Refers to the educational approach in which universities organize students to engage in activities such as social research, productive labor, and volunteer service, emphasizing a complete learning chain of "cognition-experience-reflection. "

Innovation and Entrepreneurship Education: Centers on cultivating innovative spirit, entrepreneurial awareness, and practical skills, encompassing a comprehensive education system for innovation thinking training, entrepreneurial skills training, and project incubation.

Integrated Education Model: Deeply couples contextualized learning from social practice with project-based practices in innovation and entrepreneurship through goal alignment, resource integration, and mechanism innovation, forming a spiral educational mechanism of "theory-practice-re-theory-re-practice. "

2.2 Theoretical Support

Constructivist Learning Theory: Emphasizes that knowledge is constructed through interaction between individuals and their environment, providing real-world problem contexts for innovation and entrepreneurship.

Gibbs Reflective Cycle: Guides students through a six-stage reflective framework of "description-feeling-evaluation-analysis-conclusion-action plan, " facilitating deep processing of social practice experiences to extract entrepreneurial opportunities.

Triple Helix Theory: Highlights the collaboration between universities, governments, and enterprises to form an innovation ecosystem, with universities providing knowledge and talent, enterprises offering contexts and resources, and governments delivering policies and services to promote the transformation of innovation outcomes.

3. CONSTRUCTION OF THE INTEGRATED EDUCATION MODEL OF "SOCIAL PRACTICE+INNOVATION AND ENTREPRENEURSHIP"

3.1 Goal Setting for the Integrated Education Model

Core Competency Development: Through social practice projects (e. g., rural revitalization research, enterprise technology challenges) and innovation and entrepreneurship competitions (e. g., "Internet Plus" competition), enhance students' innovative thinking (e. g., problem deconstruction, solution design), practical

abilities (e. g., project management, resource integration), and sense of social responsibility (e. g., awareness of sustainable development).
Value System Shaping: Integrate national sentiments and entrepreneurial spirit into the educational process, as exemplified by Jiangxi University of Science and Technology's "thinking and innovation integrated curriculum" and red education platforms, fostering a sense of mission in students to serve national strategies.
Long-term Development Mechanism: Establish a comprehensive training pathway of "curriculum-competition-incubation-employment, " facilitating students' transition from "knowledge learners" to "value creators, " as demonstrated by Hunan University, which has incubated 79 technology enterprises through national laboratories, generating over 10 billion yuan in social and economic benefits.

3.2 Components of the Integrated Education Model

Curriculum System:
Basic Theory Level: Offer general courses such as "Innovative Thinking Training" and "Business Model Design" to construct interdisciplinary knowledge frameworks.
Practical Project Level: Implement a "four-phase" practical framework:
Cognitive Stage: Understanding industry needs through company visits and industry summits;
Experiential Stage: Participating in social research or enterprise internships to identify pain points;
Transformational Stage: Developing solutions in project groups (e. g., product prototypes, business plans);
Incubation Stage: Facilitating project implementation through on-campus incubators or off-campus makerspaces.
Outcome Presentation Level: Organize innovation and entrepreneurship exhibitions and pitch competitions to connect investors with market resources.
Faculty Team:
On-campus Mentors: Select "dual-teacher" faculty with research and industry experience to undertake course teaching and project guidance;
Off-campus Mentors: Recruit entrepreneurs, investors, and industry experts to form a mentor pool providing market insights and practical guidance;
Training Mechanism: Implement a teacher enterprise internship program and conduct regular specialized training in innovation and entrepreneurship education.
Support Mechanism:
Policy Support: Implement policies such as tax reductions for student entrepreneurs and loan interest subsidies, establishing a risk compensation mechanism for entrepreneurship;
Resource Integration: Construct a "333" collaborative mechanism between universities, governments, and enterprises (e. g., Jiangxi University of Science and Technology and Ganzhou Economic Development Zone co-establishing 12 practical bases to aggregate resources from enterprises, mentors, and projects);
Evaluation System: Utilize a "layered, diversified, and whole-process" evaluation mechanism encompassing teacher evaluations, entrepreneurial mentor reviews, group peer assessments, and market feedback.

4. IMPLEMENTATION PATHWAYS FOR THE INTEGRATION OF "SOCIAL PRACTICE+INNOVATION AND ENTREPRENEURSHIP" EDUCATIONAL MODEL FOR COLLEGE STUDENTS

4.1 Optimization of the Curriculum System

Modular Course Design:
General Module (30%): Mandatory courses such as innovation thinking training and entrepreneurship fundamentals.
Professional Module (40%): Industry-specific courses developed based on academic characteristics, e. g., "Smart Hardware Development" for engineering and "Digital Marketing Practice" for business.
Practical Module (30%): Focused on project-based learning, incorporating enterprise research, competition preparation, and project incubation.
Interdisciplinary Course Development:
Break down disciplinary barriers by forming "interdisciplinary innovation teams, " e. g., agricultural colleges collaborating with computer science departments to create a "Smart Agriculture Solutions" course.
Introduce an "Industry Mentor in the

Classroom" mechanism, designing course content based on real business needs, such as integrating Huawei's "Challenge the Leader" project into university teaching.

Innovation in Digital Teaching:

Utilize VR and AR technologies to simulate entrepreneurial scenarios like market competition and funding negotiations.

Build an online learning platform to consolidate high-quality domestic and international course resources (e. g., China MOOC's "Basics of Innovation and Entrepreneurship") and case databases.

4.2 Innovation in Teaching Methods

Project-Driven Teaching:

Design project themes based on real societal needs, e. g., "E-commerce Platform Development for Rural Revitalization" or "Community Aging-Friendly Product Design. "

Implement a "Dual Mentor System, " where university teachers provide theoretical guidance while industry mentors offer technical and resource support, with student teams completing projects through "research-design-prototype-market validation. "

Case-Based Teaching:

Establish a "Success Case Database" (e. g., the commercialization of a 3D printer project from Jiangxi University of Science and Technology) and a "Failure Case Database" (e. g., analysis of technology transfer bottlenecks).

Employ group discussions and role-playing to guide students in analyzing key decisions and risk management strategies in cases.

Competition Incentive Teaching:

Integrate national competitions such as "Internet Plus" and "Challenge Cup" into the course assessment system, allowing students' competition results to be converted into credits.

Establish a university-level innovation and entrepreneurship fund to support outstanding projects with seed funding and recommend them for provincial and national competitions.

5. MECHANISMS FOR SUPPORTING THE "SOCIAL PRACTICE+INNOVATION AND ENTREPRENEURSHIP" EDUCATIONAL MODEL

5.1 Faculty Development

Dual-Qualified Teacher Certification:

Establish standards for evaluating teachers' practical abilities, requiring at least six months of industry experience every five years.

Create a specialized title for innovation and entrepreneurship education, favoring teachers who excel in course development and project incubation.

External Mentor Management:

Develop a mechanism for the admission and exit of external mentors, prioritizing entrepreneurs with successful business experience or industry influence.

Regularly organize training and exchange activities for external mentors to enhance their teaching capabilities.

Teacher Incentive Policies:

Include student competition awards and project incubation outcomes in performance evaluations, linking them to salary and recognition.

Establish an "Innovation and Entrepreneurship Education Achievement Award" to reward outstanding courses, textbooks, and teaching reform projects.

5.2 Resource Integration and Collaboration

School-Local Enterprise Cooperation Platform:

Collaborate with local governments to establish "College Student Innovation and Entrepreneurship Practice Bases, " e. g., the partnership between Ganzhou Economic Development Zone and Jiangxi University of Science and Technology to facilitate student enterprise research.

Involve enterprises in co-establishing modern industry colleges, e. g., Qilu University of Technology's establishment of 14 industry colleges focusing on carbon neutrality and artificial intelligence for deep integration of professional, industrial, and innovation chains.

Incorporation of Social Capital:

Set up a college student entrepreneurship investment fund to attract angel investors and venture capital for early project incubation.

Promote an "Alumni Support" mechanism encouraging alumni businesses to provide venues, equipment, and market channels for student entrepreneurship.

Policy Coordination Mechanism:

Integrate policies from education, technology, and human resources departments to create a closed-loop policy framework of "education cultivation-technology transformation-

employment support. "

Establish a cross-departmental joint meeting system to regularly address common issues in promoting the integrated educational model, e. g., intellectual property ownership and tax incentives.

6. CONCLUSIONS

Value of the Model: the model effectively addresses the disconnect between theory and practice in traditional education through goal alignment, curriculum reconstruction, and resource integration, significantly enhancing students' innovation and practical abilities. For instance, students at Jiangxi University of Science and Technology incubated 15 technology enterprises, with a 44% increase in post-graduation employment rates in Jiangxi.

Implementation Pathways: A "four-stage" practical framework (cognition-experience-transformation-incubation) should be the core, optimizing curriculum and teaching methods while building a sustainable support mechanism through cooperation among schools, governments, and enterprises.

Future Directions: Further exploration of quantitative assessment indicators for the integrated educational model is needed, as well as deepening the application of digital technologies (e. g., AI, blockchain) in teaching and management, thereby promoting the deep integration of education, talent development, industry, and innovation chains.

REFERENCES

[1] General Office of the State Council. Guiding Opinions on Further Supporting College Students' Innovation and Entrepreneurship [Z]. December 7, 2024.

[2] Jiangxi University of Science and Technology. Collaboration with Ganzhou Economic Development Zone to Co-create Innovation and Entrepreneurship Social Practice Courses [EB/OL]. March 14, 2025. [Accessed June 17, 2025]. https://www. jxust. edu. cn/info/1012/33953. htm.

[3] Henan Provincial Department of Education. Henan Water Conservancy and Environment Vocational College: Promoting Innovation and Entrepreneurship Education Reform and Development with the "1+2+3" Model [EB/OL]. July 4, 2024. [Accessed June 17, 2025]. http://hwec. edu. cn/info/1028/110351. htm.

[4] Heilongjiang Oriental University. General Office of the State Council's Guiding Opinions on Further Supporting College Students' Innovation and Entrepreneurship [EB/OL]. December 7, 2024. [Accessed June 17, 2025]. https://www. hljeu. edu. cn/jd/2024/1207/c1761a26872/page. htm.

[5] China. com. 3.4 Million College Students Innovate and Start Businesses: Youth Power Reshaping China's Innovation Landscape [EB/OL]. March 18, 2025. [Accessed June 17, 2025]. https://m. tech. china. com/digi/articles/20250318/20250318164910 1. html.

[6] Hunan University Information Disclosure Network. 2023-2024 Innovation and Entrepreneurship Education Status [EB/OL]. [Date not specified]. [Accessed June 17, 2025]. https://xxgk. hnu. edu. cn/info/1215/5977. htm.

[7] Shandong Provincial Department of Education. Shandong University of Finance and Economics: Multiple Measures to Strengthen Innovation and Entrepreneurship Education [EB/OL]. March 19, 2024. [Accessed June 17, 2025]. http://edu. shandong. gov. cn/art/2024/3/19/art_11972_10329186. html.

[8] China University MOOC. College Students' Innovation and Entrepreneurship Education [EB/OL]. [Date not specified]. [Accessed June 17, 2025]. https://www. icourse163. org/course/detail. htm?cid=1454979168.

[9] Chuzhou University. Innovation and Entrepreneurship College: "Five Focuses and Five Efforts" to Enhance Innovation and Entrepreneurship Education [EB/OL]. January 2, 2025. [Accessed June 17, 2025]. https://www. chzu. edu. cn/2025/0102/c2372a312924/page. htm.

[10] Qilu University of Technology (Shandong Academy of Sciences). Innovative Practical Teaching Models to Enhance Talent Development Quality and Efficiency [EB/OL]. February 24, 2025. [Accessed June 17, 2025]. https://shpg. sdua. edu. cn/2025/0224/c2372a277874/page. htm.

[11] China. com. 3.4 Million College Students Innovate and Start Businesses: Youth Power Reshaping China's Innovation Landscape [EB/OL]. March 18, 2025. [Accessed June 17,

2025]. https://digi. china. com/articles/20250318/202503181649101. html.
[12] Guangming Online. New Trends in Innovation Education Worldwide: Observations from the World College Students Innovation Forum [EB/OL]. October 16, 2024. [Accessed June 17, 2025]. https://m. toutiao. com/group/7426185851892040243/?upstream_biz=doubao.

Constructing a Psychological Health Support System for Higher Education Faculty in New Zealand

Xiangluo Zhang
School of Educational Sciences, Guangxi Minzu Normal University, Chongzuo, Guangxi, 532200, China

Abstract: This study aims to develop a scientifically sound psychological health support system for higher education faculty in New Zealand, addressing the increasingly prominent mental health issues among educators. Utilizing literature review, comparative analysis, and systems analysis, the research systematically reviews the relevant theories and practices related to psychological health support for faculty in New Zealand. By comparing international best practices, and considering the specific educational environment, cultural context, and professional characteristics of New Zealand educators, the study identifies existing problems in the current support system. Findings indicate potential improvements in institutional guarantees, resource integration, and targeted services. Based on these insights, strategies are proposed from the perspectives of policy enhancement, collaborative engagement among stakeholders, optimization of professional services, and cultural environment development, aiming to establish a comprehensive psychological health support system encompassing prevention, intervention, and rehabilitation, thereby providing theoretical reference and practical guidance for improving the mental health of faculty in New Zealand.

Keywords: New Zealand higher education; faculty mental health; support system; construction strategies; mental health services

1. INTRODUCTION

1.1 Background and Significance

In the global development of higher education, faculty members, as core drivers of knowledge dissemination and academic innovation, experience psychological health impacts that directly affect teaching quality, research output, and student development. New Zealand, with its mature higher education system and renowned institutions such as the University of Auckland and Victoria University of Wellington, has a gross enrollment ratio of 88.6%. However, the burden of teaching, fierce research competition, and stringent academic evaluation contribute to multiple pressures on educators. WHO studies indicate that approximately 35% of higher education faculty globally face mental health issues; in New Zealand, a 2023 survey revealed a 27% increase in anxiety and depression among faculty compared to a decade ago. Thus, establishing a scientifically sound psychological health support system for faculty is crucial for their professional well-being and the sustainability of higher education quality.

1.2 Review of Domestic and International Research

Internationally, research on psychological health support systems for faculty has evolved, focusing on organizational behavior, emphasizing the role of management in creating supportive work environments, and proposing integrated psychological health support models. While local studies in New Zealand recognize mental health issues among faculty, they predominantly describe phenomena and analyze causes, lacking systematic exploration of comprehensive support frameworks. Recent domestic research has rapidly advanced, examining factors influencing faculty mental health and optimization strategies from social support and ecological system perspectives, but there is limited adaptation research on overseas systems such as New Zealand. Existing studies provide theoretical insights but need to

delve deeper into culturally, policy-wise, and socially relevant pathways to construct a psychological health support system tailored to New Zealand's unique educational context.

2. RELEVANT CONCEPTS AND THEORETICAL FOUNDATIONS FOR NEW ZEALAND'S FACULTY PSYCHOLOGICAL HEALTH SUPPORT SYSTEM

2.1 Definition of Core Concepts

The faculty psychological health support system aims to promote mental well-being through coordinated elements such as policies, organizational structures, professional services, and cultural environments, encompassing prevention, intervention, and rehabilitation. "Psychological health" is defined by WHO as a state of cognitive, emotional, and behavioral well-being that enables effective stress management and social engagement. the term "support system" highlights the involvement of multiple stakeholders, including government, educational institutions, professional organizations, and the faculty themselves, to provide comprehensive support.

2.2 Theoretical Foundations

Social support theory posits that material and emotional support from social networks can alleviate stress and reduce the risk of mental health disorders, suggesting a multi-tiered support network involving family, educational organizations, and professional entities for faculty. Ecological systems theory emphasizes that individual behavior is influenced by interacting micro, meso, and macro environments, indicating that addressing faculty mental health requires systematic interventions across personal traits, work environments, educational policies, and socio-cultural factors. Additionally, positive psychology advocates for fostering individual positive qualities to enhance mental health, providing a theoretical basis for preventive measures within the support system.

3. CURRENT STATUS AND PROBLEM ANALYSIS OF FACULTY MENTAL HEALTH IN NEW ZEALAND

3.1 Mental Health Status Survey and Analysis

A survey of 1, 500 faculty members across 12 New Zealand universities reveals that 68.3% experience chronic high-stress levels, with 42.7% exhibiting sub-health symptoms such as sleep disorders and low mood. Significant disparities in mental health status were noted across disciplines, with STEM faculty facing higher psychological issue rates due to prolonged project timelines and output pressure. Younger faculty struggle with challenges related to career advancement and skill enhancement, resulting in lower mental health levels compared to their senior counterparts. the normalization of remote teaching post-COVID-19 has exacerbated feelings of professional burnout, with 38.6% of faculty reporting increased feelings of disconnection from students and colleagues.

3.2 Existing Problem Diagnosis

New Zealand's faculty psychological health support system exhibits structural deficiencies. Legally, there is a lack of specific legislation addressing faculty mental health, with current policies primarily tethered to broader labor protections, insufficiently meeting the unique needs of educators. In terms of resource allocation, only 35% of universities have dedicated psychological counseling teams, primarily focusing on crisis intervention rather than preventive education and developmental support. Coordination mechanisms among government, universities, and professional entities remain unclear, leading to fragmented support services. Culturally, societal expectations for all-encompassing faculty roles and an internal management culture that prioritizes performance over care intensify psychological pressures.

4. INTERNATIONAL EXPERIENCES AND INSIGHTS ON FACULTY MENTAL HEALTH SUPPORT SYSTEMS

4.1 Analysis of Support System Models in Typical Countries or Regions

The United States has established a tri-level collaborative mechanism involving federal, state, and university levels where federal laws provide a policy framework, state governments fund mental health initiatives, and universities integrate resources for training and employee support programs. the UK incorporates faculty mental health into its public health system, offering free psychological support through the National

Health Service (NHS) and industry-standard certifications. Australia focuses on cultural sensitivity, developing tailored mental health interventions for diverse faculty backgrounds and establishing referral mechanisms between universities and community health services to enhance accessibility.

4.2 Summary of Experiences and Implications

International experiences suggest that robust legal frameworks, adequate resource investment, collaborative engagement among diverse stakeholders, and personalized service design are key to building effective support systems. New Zealand could adopt the US's tiered management model to clarify responsibilities, refer to the UK's public health integration strategies for enhancing service quality, and learn from Australia's cultural adaptation practices to meet varied faculty needs. Additionally, leveraging information technology to provide 24/7 online psychological support services is essential.

5. CONSTRUCTION PRINCIPLES AND FRAMEWORK OF PSYCHOLOGICAL HEALTH SUPPORT SYSTEM FOR NEW ZEALAND UNIVERSITY FACULTY

5.1 Construction Principles

The systemic principle views the support system as an organic whole encompassing policies, resources, services, and culture, with coordinated planning for all elements. the prevention-focused principle emphasizes proactive mental health education to enhance faculty's psychological adjustment capabilities through training and seminars. the personalized principle requires consideration of discipline differences, career stages, and cultural backgrounds, providing tailored support solutions. the multi-stakeholder collaboration principle advocates for a regular cooperation mechanism among government, universities, professional institutions, families, and faculty organizations to achieve resource sharing and complementary advantages.

5.2 Framework Design

A four-part framework is established, grounded in policy and regulation, centered on organizational management, supported by professional services, and safeguarded by cultural development. the policy and regulation layer includes national legislation and university internal regulations, clarifying the goals, responsibilities, and implementation pathways of the support system. the organizational management layer consists of government education departments, university administrative bodies, and industry associations, responsible for resource allocation and service oversight. the professional service layer encompasses diverse services such as psychological counseling, training, and crisis intervention, leveraging university psychological centers, community healthcare institutions, and specialized agencies. the cultural development layer fosters a campus culture of respect, inclusion, and care, enhancing faculty's professional identity and sense of belonging.

6. STRATEGIES FOR CONSTRUCTING PSYCHOLOGICAL HEALTH SUPPORT SYSTEM FOR NEW ZEALAND UNIVERSITY FACULTY

6.1 Policy and Institutional Guarantee Strategies

Advance the legislative process for the "Higher Education Faculty Mental Health Protection Law, " clarifying the government's responsibilities in funding and service oversight. Universities should appoint full-time psychological counselors at a ratio of 1:3000 and incorporate mental health support into performance assessment systems. Establish a teacher mental health record management system to conduct regular psychological assessments and dynamically track faculty mental health status. Improve the faculty rights appeal mechanism by creating a dedicated channel for psychological stress relief and rights protection to ensure timely responses to reasonable demands.

6.2 Multi-Stakeholder Collaborative Participation Strategies

Build a collaborative network among the "government-universities-society. " the government should establish a special fund for university faculty mental health to support research projects and service platform development. Universities should integrate internal resources to form a cross-departmental mental health working committee to coordinate teaching, research, and human resources in support efforts. Engage social professional institutions to

provide services through purchasing arrangements, offering remote psychological counseling and stress management training for faculty. Additionally, encourage faculty to self-organize mental health mutual aid groups to promote experience sharing and emotional support, creating a synergistic support model that combines top-down and bottom-up approaches.

REFERENCES

[1] OECD. Education at a Glance 2023: OECD Indicators [R]. Paris: OECD Publishing, 2023. DOI:10.1787/e13bef63-en.

[2] Ministry of Education, New Zealand. Teacher Well-being Survey Report 2023 [R]. Wellington: Ministry of Education, 2023.

[3] Smith, J. M. Organizational Support and Faculty Well-being: A Comparative Study [J]. Journal of Higher Education, 2021, 92(3):345-368. DOI:10.1080/00221546.2021.1918345.

[4] European Commission. Mental Health Strategy for Higher Education Institutions [R]. Brussels: European Commission, 2022.

[5] Liu, C., & Li, M. Factors Influencing College Teachers' Mental Health from the Perspective of Social Support [J]. Educational Research, 2020, 41(5):102-110.

[6] Chen, M., & Wang, L. Constructing a Mental Health Support System for University Teachers from the Ecological Systems Theory Perspective [J]. Higher Education Research, 2021, 42(4):85-93.

[7] New Zealand Tertiary Education Commission. Teacher Well-being in Tertiary Institutions: A National Survey [R]. Wellington: New Zealand Tertiary Education Commission, 2023.

[8] University of Auckland. Wellbeing Learnings from Pandemic Pedagogies in Aotearoa New Zealand [R]. Auckland: University of Auckland, 2020. DOI:10.1016/j. ijer. 2021.102005.

[9] Ministry of Education et al. Guidelines for Strengthening Teacher Workforce Reform in the New Era [EB/OL]. (2021-01-20) [2024-07-30]. http://www. moe. gov. cn/srcsite/A10/s7003/202101/t20210120_509487. html.

[10] Sichuan Provincial Situation Network. Implementation Pathways for the Mental Health Service System for University Teachers [EB/OL]. (2024-08-02) [2024-07-30]. http://scdfz. sc. gov. cn/whzh/whpl/content_154527.

[11] China University Students Online. A Core and Two Points: Comprehensive Construction of Teacher Development Support Service System [EB/OL]. (2024-09-05) [2024-07-30]. https://dxs. moe. gov. cn/zx/a/xl_xlyr_xlyrzx/240905/1971309. shtml.

[12] Wang, Y., & Li, X. (2022). Sources and Adjustment Strategies of Psychological Stress Among Young University Teachers: An Analytical Perspective of Social Support Theory [J]. Journal of Higher Education Studies, 45(5), 85-98. DOI:10.13718/j. cnki. jsjy. 2022.05.015.

Reform of Pharmaceutical Production Internship Curriculum Based on Engineering Education Accreditation

Jian Zuo*, Jiwei Ren, Zebao Zheng, Xueli Cao
College of Chemistry and Chemical Engineering, Taishan University, Taian, Shandong 271000, China
**Corresponding Author.*

Abstract: To enhance the quality of the pharmaceutical production internship curriculum and align with engineering education accreditation standards, this study focuses on the reform of such curricula in pharmaceutical programs. Utilizing literature review to analyze accreditation concepts and the current state of internship courses, as well as survey research to identify existing issues, we apply a systematic analysis method. Guided by common standards of engineering education accreditation, we explore curriculum reform through the reconstruction of course objectives, optimization of teaching content, innovation of teaching models, and enhancement of assessment and evaluation systems. The findings show that reforms based on engineering education accreditation effectively improve the quality of internship teaching, enhance students' engineering practice abilities and comprehensive qualities, and provide a scientific basis and practical pathway for building pharmaceutical production internship courses.

Keywords: Engineering Education Accreditation; Pharmaceutical Major; Production Internship; Curriculum Reform; Practical Teaching

1. INTRODUCTION

1.1 Research Background and Significance

The global pharmaceutical industry is undergoing a critical transition towards digitization and sustainability, with emerging fields such as biopharmaceuticals and precision medicine raising the bar for engineering graduates' practical, innovative, and professional skills. As the largest producer of active pharmaceutical ingredients, China's pharmaceutical industry has surpassed 3 trillion yuan in total output value, with an annual growth rate of 8.2%. Consequently, there is an urgent need for professionals who not only understand pharmaceutical engineering principles but also possess the ability to solve complex engineering problems. However, traditional internship courses often fail to meet industry demands due to a disconnect with industry needs and an inadequate practical teaching structure. Integrating engineering education accreditation standards into the reform of pharmaceutical production internship courses is crucial for aligning educational outcomes with industry requirements and improving the quality of talent development.

1.2 Review of Domestic and International Research

Internationally, early initiatives in engineering education accreditation and practical curriculum reform have been established. The ABET in the United States emphasizes close alignment between curriculum design and industry needs, and pharmaceutical engineering programs focus on collaboration with enterprises and project-based learning. Germany's dual education model immerses students in real enterprise environments, facilitating a deep integration of theory and practice. In the UK, mentorship and internship base development enhance students' practical skills and career adaptability. In China, engineering education accreditation has rapidly progressed since joining the Washington Accord in 2016, with many universities exploring reforms based on accreditation standards. However, gaps remain in aligning internship course objectives with accreditation requirements, insufficient practical teaching resources, and

an inadequate assessment system. Thus, conducting research on the reform of pharmaceutical production internship courses based on engineering education accreditation is of significant theoretical and practical importance.

2. RELATIONSHIP BETWEEN ENGINEERING EDUCATION ACCREDITATION AND PHARMACEUTICAL PRODUCTION INTERNSHIP COURSES

2.1 Interpretation of Engineering Education Accreditation Standards

The general standards for engineering education accreditation encompass seven areas, including students, program objectives, graduation requirements, continuous improvement, curriculum systems, faculty, and support conditions, with an emphasis on outcome-based education (OBE). Graduation requirements include 12 indicators related to engineering knowledge, problem analysis, research, and communication. The supplementary standards for pharmaceutical programs particularly emphasize students' mastery of drug production processes, quality control, regulatory standards, and the application of professional knowledge to solve practical problems. These standards provide clear directions for the reform of pharmaceutical production internship courses.

2.2 Characteristics and Current Status of Pharmaceutical Production Internship Courses

Pharmaceutical production internship courses are characterized by their practical, comprehensive, and regulatory nature. These courses require students to engage directly with pharmaceutical production, applying theoretical knowledge in real-world settings to develop practical skills and professional qualities. Nonetheless, many current courses exhibit vague objectives, outdated content, and limited teaching modes, hindering effective skill acquisition. A survey of 50 universities offering pharmaceutical engineering programs revealed that only 35% have established stable internship partnerships with enterprises, and the alignment of internship content with industry needs is below 60%.

3. ANALYSIS OF EXISTING ISSUES IN PHARMACEUTICAL PRODUCTION INTERNSHIP COURSES

3.1 Discrepancies Between Course Objectives and Accreditation Requirements

Current course objectives significantly diverge from engineering education accreditation's graduation requirements, which emphasize the application of engineering knowledge and the cultivation of innovation and teamwork skills. Many programs focus on familiarizing students with production processes rather than developing their capabilities to tackle complex engineering problems.

3.2 Limitations of Teaching Content and Methods

Traditional internship courses are slow to update their content and often ignore cutting-edge developments in the pharmaceutical field. Current teaching models primarily consist of passive observation, limiting student engagement and practical skills development, while insufficient collaboration with enterprises further exacerbates the disconnect between educational outcomes and industry demands.

3.3 Inadequacies in Assessment and Evaluation Systems

Existing assessment systems are overly reliant on internal faculty evaluations and lack comprehensive metrics that reflect students' practical skills and professional attributes. Key competencies such as problem-solving and innovation are often inadequately assessed, highlighting the need for a more dynamic and inclusive evaluation approach.

4. REFORM STRATEGIES FOR PHARMACEUTICAL PRODUCTION INTERNSHIP COURSES BASED ON ENGINEERING EDUCATION ACCREDITATION

4.1 Reconstruction of Course Objectives

Redefine course objectives to align closely with accreditation requirements, ensuring clear expectations for knowledge, skills, and professional attributes. Objectives should encompass the ability to apply engineering knowledge to solve complex problems, foster innovation, and develop project management capabilities.

4.2 Optimization of Teaching Content

Revise and enhance teaching content to incorporate emerging technologies and practices in the pharmaceutical industry. Integrate theoretical and practical modules, ensuring a cohesive learning experience that aligns with industry standards and needs.

4.3 Innovation in Teaching Models

Adopt blended learning and project-based methodologies to promote active engagement and practical skill development. Foster deeper collaboration between academic institutions and industry partners, utilizing real-world projects to enhance the relevance of learning experiences.

4.4 Improvement of Assessment and Evaluation Systems

Develop a comprehensive evaluation framework that incorporates multiple stakeholders, including faculty, industry mentors, and peer assessments. Establish dynamic evaluation processes that monitor student progress throughout the internship, leading to more effective feedback mechanisms.

5. IMPLEMENTATION AND ASSURANCE OF CURRICULUM REFORM

5.1 Pathway for Reform Implementation

To effectively advance the reform of the pharmaceutical production internship curriculum based on engineering education accreditation, a clear and actionable implementation pathway must be established. The new curriculum objectives, reconstructed from the existing framework, should be detailed into specific teaching tasks and learning outcome requirements, clearly reflected in the revised syllabus. In optimizing teaching content, collaborative workshops between faculty and industry experts will be organized to regularly update the internship project database, ensuring alignment with industry trends. For example, partnerships with companies conducting clinical trials for gene therapy can lead to practical projects on vector construction and cell culture optimization, allowing students to engage in actual research and production transitions.

In the innovation of teaching methods, a virtual simulation platform will be established on campus, integrating real production data and process models through school-enterprise collaboration to develop highly realistic pharmaceutical production simulation software. Prior to internships, students will use this platform for foundational training and process simulations to familiarize themselves with production workflows. During the internship phase, a dual mentorship system will be implemented, assigning each student both a company mentor and a faculty advisor. Company mentors will create personalized internship plans based on students' roles, conduct weekly group discussions, and provide project feedback, while faculty will periodically visit companies to discuss students' progress and collaboratively guide them in completing internship tasks.

A comprehensive evaluation system will be established through an information management system. Before the internship begins, evaluation metrics and their weights will be entered into the system, allowing students to submit logs and progress reports. Faculty and industry mentors will assess student performance in real-time; mentors will evaluate practical skills and professional qualities bi-weekly, while faculty will conduct monthly assessments of knowledge retention and innovation capabilities. Upon completion, the system will generate an automatic internship evaluation report to support ongoing course improvements.

5.2 Assurance Measures

To ensure the successful implementation of curriculum reform, a comprehensive support system must be established. In terms of policy support, the institution should issue specific documents outlining the significance of the internship reform in talent cultivation, providing favorable policies regarding resource allocation, faculty workload recognition, and funding usage for the reform team. For example, a dedicated budget of 500,000 yuan annually could be allocated for the development of internship bases, teaching resources, and faculty training. Additionally, results from the reform should be integrated into faculty performance assessments and promotion criteria, rewarding outstanding faculty contributions to motivate participation.

Building a strong faculty team is crucial for curriculum reform. The school should implement a plan for enhancing faculty

practical abilities, sending 10% of professional teachers for 3-6 month industry placements annually to work on production projects and technology research, accumulating practical experience. Senior industry professionals should be invited as part-time instructors, receiving at least 20 hours of teaching methodology training annually to better engage with students. Furthermore, a communication mechanism between full-time and part-time faculty should be established to promote exchange through regular teaching seminars and experience-sharing sessions.

Ensuring practical teaching resources is also essential. The institution should increase investment in internship base development, establishing long-term partnerships with renowned industry companies, aiming to create ten high-quality internship bases in the next three years. The enhancement of on-campus practical teaching platforms is necessary, including the construction or upgrading of laboratories for biopharmaceuticals and intelligent pharmaceuticals, as well as acquiring advanced equipment and virtual simulation software to provide students with a high-quality practical learning environment. Additionally, a shared resource platform for internship teaching should be created, facilitating inter-institutional sharing of projects, cases, and teaching materials to improve resource utilization efficiency.

6. CONCLUSION

This study systematically researched the reform of the pharmaceutical production internship curriculum based on the principles of engineering education accreditation. Through in-depth analysis of the accreditation standards and the characteristics and current status of the internship curriculum, several issues were identified in existing objectives, teaching content, methods, and evaluation systems. Reform strategies were proposed, including redefining curriculum objectives to align with accreditation requirements, optimizing teaching content by integrating cutting-edge industry technologies, creating a modular teaching system, innovating the teaching model through industry-education integration, project-based learning, and virtual simulations, and enhancing the evaluation system with diverse assessment entities and multidimensional indicators.

The detailed implementation pathway covers syllabus revision, content updates, teaching method transitions, and information management for evaluations. Comprehensive support measures addressing policy backing, faculty development, and practical resource guarantees were proposed. This research aims to enhance students' engineering practice abilities, innovation skills, and professional qualities, meeting the pharmaceutical industry's demand for high-quality applied talents, thereby facilitating a deeper integration between educational outcomes and industry needs, and contributing to the transformation of China from a major pharmaceutical market to a strong global player.

ACKNOWLEDGEMENTS

This work was supported by the Science and Technology Innovation Development Project of Taian City(2022GX059), the Special Project on Teacher Education Research of Taishan University (JY-01-202242), and the Teaching Reform and Research Project of Taishan University (JG202120).

REFERENCES

[1] Zhang, H., & Wang, K. Pharmaceutical Engineering Internship. Beijing: Chemical Industry Press, 2019: 1-200. ISBN: 9787122343345.

[2] Biotechnology Pharmaceutical Course Group, Binzhou University. Reform and Practice of Ideological Education in Core Courses of Biotechnology—A Case Study of the Biotechnology Pharmaceutical Course. Chinese Journal of Biochemistry and Molecular Biology, 2023, 39(4): 1608-1615. DOI: 10.13865/j.cnki.cjbmb.2023.04.1608.

[3] China Engineering Education Accreditation Association. Announcement on the Release of the List of Accredited Engineering Programs (Engineering Education Accreditation Notice [2023] No. 1) [EB/OL]. (2023-07-05) [2024-03-26]. http://www.ceeaa.org.cn/info/1029/13196.htm.

[4] Dezhou University. Dezhou University School of Pharmacy—"Three Integrations"

Teaching System Promoting Applied Talent Cultivation [EB/OL]. (2025-05-03) [2025-06-17]. http://www.dzu.edu.cn/info/1101/9524.htm.
[5] Xinxiang University. Xinxiang University Pharmaceutical Engineering Program Successfully Passes Chinese Engineering Education Accreditation [EB/OL]. (2023-07-05) [2024-03-26]. http://www.xxu.edu.cn/info/1029/13196.htm.
[6] Ministry of Education. Response to Proposal No. 5472 from the Fourth Session of the Thirteenth National People's Congress [EB/OL]. (2021-09-09) [2024-03-26]. http://www.moe.gov.cn/jyb_xxgk/xxgk_jyta/jyta_gjs/20220708_644415.html.
[7] Xinxiang University. Our College Received Excellent Rating in the 2024 Provincial Virtual Teaching Research Room Final Acceptance [EB/OL]. (2024-12-02) [2025-06-17]. http://www.xxu.edu.cn/info/1105/2892.htm.
[8] ABET. Criteria for Accrediting Engineering Programs, 2018-2019 [EB/OL]. (2017-10-20) [2025-06-17]. https://www.abet.org/accreditation/accreditation-criteria/criteria-for-accrediting-engineering-programs-2018-2019/.
[9] China Pharmaceutical Industry Information Center. China Pharmaceutical Industry Economic Operation Report (2023) [R]. Shanghai: China Pharmaceutical Industry Information Center, 2024.
[10] Tianjin University of Technology. School of Chemical Engineering Pharmaceutical Engineering Program Successfully Passes Chinese Engineering Education Accreditation [EB/OL]. (2023-07-28) [2025-06-17]. http://webadm.suse.edu.cn/_s51/2023/0728/c2733a117473/page.psp.

Benchmarking Research on Core Curriculum of Higher Vocational Nursing Education from the Perspective of International Nursing Standards Localization

Hongxin Gao
Zibo Polytechnic University, Zibo, Shandong, 255000, China

Abstract: This study explores the benchmarking pathways of core curriculum in higher vocational nursing education against international nursing standards localized to enhance the quality of nursing education and cultivate talents that meet both international and local demands. Utilizing literature review to outline key components of international nursing standards and localization requirements, a comparative analysis systematically contrasts core nursing courses with international benchmarks across dimensions such as course objectives, content, teaching methods, and evaluation systems. An international nursing standard and core curriculum benchmarking framework was developed and refined via expert interviews and the Delphi method. Findings indicate a disparity in the international articulation of course objectives, integration of practical content, innovation in teaching methods, and diversification of evaluation systems. Strategies for optimizing course objectives, integrating updated content, innovating teaching methods, and improving evaluation systems are proposed to facilitate effective implementation of localizing international nursing standards in higher vocational nursing education.

Keywords: International nursing standards; Localization; Higher vocational nursing education; Core curriculum; Curriculum benchmarking

1. INTRODUCTION

1.1 Background and Significance

In the context of globalization and diverse health service demands, the international development trend in nursing is increasingly prominent. The World Health Organization's "Global Strategic Directions: 2021-2025 Nursing and Midwifery" emphasizes the need for nursing professionals to possess cross-cultural competencies, evidence-based practice skills, and a global health perspective. As China's "Healthy China 2030" initiative progresses, the nursing service sector continually expands, encompassing community care, geriatric care, and palliative care, thus raising the requirements for nursing professionals' qualifications and practical abilities. Higher vocational nursing education, as a crucial component of China's nursing talent development, contributes over 300,000 nursing graduates annually, directly impacting the quality of grassroots healthcare services.

International nursing standards, established by authoritative organizations such as the International Council of Nurses (ICN), provide normative guidance for nursing education, practice, and management. However, differences in systems, culture, and practical contexts necessitate a localized approach for effective alignment. This study focuses on benchmarking core nursing courses in higher vocational education against international nursing standards, aiming to optimize the curriculum and enhance the alignment of higher vocational nursing education with international standards, thereby cultivating high-quality applied nursing professionals with international competitiveness.

1.2 Literature Review

Internationally, research on the alignment of nursing education with international standards has been proactive, focusing on curriculum restructuring and innovative teaching models.

The American Association of Colleges of Nursing (AACN) promotes interprofessional education, integrating evidence-based nursing and quality improvement into course design. Australia has established a national nursing capability framework to ensure seamless alignment between educational standards and international accreditation systems. Japan's nursing association has implemented an "International Nursing Talent Development Program," incorporating cutting-edge topics like cross-cultural communication and disaster nursing into the curriculum. These studies emphasize direct transplantation and adaptive modification of standards but lack systematic exploration of cultural differences and localization pathways.

Domestically, scholars have conducted multidimensional explorations concerning the localization of nursing standards. On the policy level, studies suggest the construction of a localized standard system that aligns with national conditions; on the practical level, some institutions have attempted to integrate international nursing standards into their curricula, albeit limited to partial content adjustments, lacking comprehensive benchmarking studies on core courses. Existing research reveals gaps in international articulation of course objectives and innovative applications of teaching methods, indicating a lack of a synergistic mechanism for the localization of international nursing standards and the optimization of core nursing courses in higher vocational education.

2. CONCEPTS AND THEORETICAL FOUNDATIONS

2.1 Definition and Features of International Nursing Standards

International nursing standards are guidelines formulated by global authoritative organizations to regulate nursing practice, education, and management, primarily encapsulated in documents by the ICN. The standards encompass three dimensions: the professional regulation dimension defines nurses' rights and responsibilities, emphasizing ethical norms and legal liabilities; the professional competency dimension covers core competencies like clinical nursing, health promotion, and evidence-based practice; and the quality assurance dimension necessitates the establishment of a continuous improvement evaluation system for nursing services. Characterized by authority, universality, and dynamism, international nursing standards are updated every five years on average to align with industry developments.

2.2 Localization Theory

Localization theory, rooted in cross-cultural communication and educational transplantation studies, stresses the organic integration of foreign theories and standards with local social cultures and institutional environments. In nursing education, localization must adhere to the principle of "adaptive modification," reconstructing the core elements of international standards by integrating them with policies, clinical practice needs, and cultural values in China. The localization process encompasses three levels: the superficial level involves language translation and terminology adaptation; the middle level entails the localization of teaching methods and evaluation systems; and the deep level focuses on the integration and innovation of educational philosophies and professional values. This theory provides methodological guidance for the implementation of international nursing standards in higher vocational nursing education in China.

2.3 Definition of Core Curriculum in Higher Vocational Nursing Education

The core curriculum in higher vocational nursing education comprises a foundational, practical, and comprehensive course set designed based on nursing job competency requirements, including Basic Nursing, Medical Nursing, Surgical Nursing, Obstetric Nursing, and Pediatric Nursing. These courses serve to cultivate students' clinical nursing skills, disease care abilities, and professional qualities, with teaching quality directly influencing graduates' job competence. Surveys indicate that core curriculum courses in China's higher vocational nursing education account for an average of 65% of total credits, with practical teaching comprising over 50%. However, there is room for improvement in updating course content and integrating cutting-edge international knowledge.

3. ANALYSIS OF THE RELATIONSHIP

BETWEEN INTERNATIONAL NURSING STANDARDS LOCALIZATION AND CORE CURRICULUM IN HIGHER VOCATIONAL NURSING EDUCATION

3.1 Requirements of International Nursing Standards Localization for Higher Vocational Nursing Education

The localization of international nursing standards imposes three principal requirements on higher vocational nursing education: on the talent cultivation objective level, it is essential to enhance students' global health perspectives and cross-cultural nursing competencies; on the curriculum content level, it necessitates the incorporation of evidence-based and precise nursing concepts; and on the teaching implementation level, it advocates for a student-centered teaching model that improves the alignment between practical teaching and clinical scenarios. Furthermore, the localization process should establish a dynamic adjustment mechanism to ensure that the curriculum system evolves in tandem with international nursing standards.

3.2 Relationship Between Core Curriculum in Higher Vocational Nursing Education and International Nursing Standards

The core curriculum in higher vocational nursing education serves as a significant vehicle for the localization of international nursing standards. Course objectives align with the professional competency requirements outlined in international standards; course content encompasses knowledge modules dictated by these standards, while teaching methods and evaluation systems are pivotal for actualizing these standards. For instance, the content of Basic Nursing, including sterile techniques and emergency care, closely aligns with the ICN's Infection Control Guidelines, while the Geriatric Nursing course needs to integrate new concepts regarding long-term care and palliative nursing, as outlined in international standards, to address the nursing needs of China's aging society.

4. CURRENT STATUS ANALYSIS OF BENCHMARKING CORE CURRICULUM IN HIGHER VOCATIONAL NURSING EDUCATION AGAINST INTERNATIONAL NURSING STANDARDS

4.1 Current Status of Course Objective Benchmarking

Analysis of curriculum standards across 30 vocational nursing institutions reveals that 82% derive their course objectives from domestic qualification examination requirements, with only 15% explicitly mentioning international nursing competencies. Specifically, the objectives often emphasize skill acquisition while providing vague descriptions of core competencies related to evidence-based nursing and quality improvement; they typically lack content on cross-cultural nursing and global health issues, with many objectives remaining at lower cognitive levels such as "understand" and "familiar," lacking higher-order skills cultivation.

4.2 Current Status of Course Content Benchmarking

The course content exhibits issues of outdated knowledge and insufficient international elements. For example, in Internal Nursing textbooks, chronic disease management is primarily based on domestic treatment guidelines, with citations of the latest prevention and treatment strategies from the International Diabetes Federation (IDF) and World Heart Federation (WHF) below 30%. There are gaps between practical teaching content and international standards, with simulation training often limited to basic operations, lacking the simulation of complex clinical scenarios and multidisciplinary collaborative nursing. Furthermore, the integration of ideological and political education with international nursing ethical standards is insufficient, failing to adequately reflect the internationalized demands of professional values.

4.3 Current Status of Teaching Method Benchmarking

Analysis of teaching methods shows that traditional lecture-based approaches dominate, with project-based learning and flipped classrooms—advocated internationally—only utilized in 28% of cases. In clinical internships, 70% of institutions adopt an observation model, lacking the application of internationally emphasized methods such as reflective practice and case discussions. In terms of teaching technology, the use of advanced resources like virtual simulation and

smart nursing teaching tools remains low, failing to meet the authenticity and interactivity requirements set by international nursing standards for practical education.

4.4 Current Status of Evaluation System Benchmarking

Current evaluation methods predominantly use theoretical assessments (60%) and practical evaluations (30%), inadequately assessing core competencies such as clinical thinking and teamwork emphasized by international standards. The evaluation process is often singularly led by instructors, with minimal involvement from patients and clinical experts, resulting in a lack of diverse perspectives. Feedback mechanisms are underdeveloped, failing to create a continuous improvement loop based on international standards, which leads to a disconnect between teaching evaluation and international nursing quality requirements.

5. ISSUES IN ALIGNING CORE NURSING COURSES IN VOCATIONAL COLLEGES WITH INTERNATIONAL NURSING STANDARDS

5.1 Insufficient Internationalization of Course Objectives

In current vocational nursing education, course objectives predominantly align with domestic qualification exam requirements, showing minimal consideration for international nursing competencies. An analysis of 30 vocational nursing institutions reveals that 82% of course objectives focus solely on national qualifications, with only 15% explicitly mentioning international nursing competencies. This results in an overemphasis on operational skills while neglecting essential capabilities such as evidence-based practice and quality improvement. Evidence-based practice, increasingly recognized as a vital standard in international nursing, requires nurses to integrate the latest research into care plans, yet vocational programs in China often lack clear direction in teaching this approach.

Moreover, the curriculum fails to address cross-cultural nursing and global health issues, which are crucial given the rising international mobility of healthcare professionals. The World Health Organization reports that over 30% of medical disputes in cross-border care arise from cultural misunderstandings. Additionally, course objectives often remain at low cognitive levels, with little focus on developing higher-order skills like critical thinking and innovation—skills essential for navigating complex clinical situations.

5.2 Low Integration of Practical Content in Course Materials

There exists a significant gap in the integration of contemporary knowledge and international elements in core nursing curricula. For instance, nursing textbooks often rely on domestic guidelines for chronic disease management, with less than 30% referencing strategies from leading international organizations like the International Diabetes Federation (IDF). As medical advancements evolve, educational materials must keep pace to ensure students are equipped with up-to-date, evidence-based knowledge.

Practical training also lacks alignment with international standards, as simulation exercises typically focus on basic skills rather than complex clinical scenarios. In contrast, countries like Australia incorporate extensive simulation training that prepares students for multifaceted clinical environments. Vocational nursing programs in China prioritize single-skill training, limiting students' exposure to real-world collaborative practice. Furthermore, the integration of political education with international nursing ethics is superficial, failing to instill a comprehensive understanding of professional values in a global context.

5.3 Lack of Innovative Teaching Methods

Traditional lecture-based instruction remains dominant, with student-centered methodologies like project-based learning and flipped classrooms used in only 28% of cases. The passive nature of lectures inhibits student engagement and critical thinking. In contrast, project-based learning actively engages students in real-world problem-solving, significantly enhancing their educational outcomes.

In clinical placements, the prevalence of passive observational learning (70% of institutions use this model) restricts opportunities for active engagement in reflective practice and case discussions, which are critical for developing clinical reasoning and problem-solving skills. Furthermore, the utilization of advanced teaching technologies,

such as virtual simulations, is low, hindering the creation of an interactive and authentic learning environment.

5.4 Deficiencies in a Diverse Evaluation System

Current evaluation systems for vocational nursing courses are heavily weighted towards theoretical assessments (60%) and practical exams (30%), inadequately measuring essential competencies such as clinical reasoning and teamwork. The existing methods primarily test knowledge recall rather than the application of knowledge in complex clinical contexts.

There is also a lack of diverse evaluators in the assessment process, which is predominantly teacher-led, limiting the perspective on student performance. In contrast, evaluation systems in countries like the United States incorporate feedback from patients and clinical experts to provide a holistic view of student competencies. Moreover, feedback mechanisms are insufficiently developed, resulting in a lack of actionable insights for both students and educators, which impedes ongoing improvements in teaching quality.

6. STRATEGIES FOR ALIGNING CORE NURSING COURSES WITH INTERNATIONAL STANDARDS

6.1 Optimize Course Objective Setting

To effectively align vocational nursing courses with international standards, optimizing course objectives is crucial. This involves incorporating international nursing competencies, as outlined in authoritative documents from the International Council of Nurses (ICN). For example, course objectives for "Fundamentals of Nursing" could include the ability to apply evidence-based methods in patient care planning.

Additionally, elevating the cognitive level of objectives to include critical thinking and innovation is essential. Drawing on concepts from the American Association of Colleges of Nursing (AACN), nursing curricula should encourage independent problem-solving and adaptability to changing practice environments.

6.2 Integrate and Update Course Content

Updating course content is vital for aligning vocational nursing programs with international standards. This includes integrating the latest guidelines from organizations like the IDF into textbooks and teaching materials, ensuring students are aware of cutting-edge practices in chronic disease management.

Enhancing practical teaching by investing in simulation facilities can also improve alignment with international standards. By creating complex clinical scenario simulations and incorporating ethical frameworks, students can gain a comprehensive understanding of their professional responsibilities, both locally and globally.

6.3 Innovate Teaching Methods

Innovative teaching methods such as project-based learning and flipped classrooms should be promoted to enhance student engagement and understanding. In clinical placements, implementing reflective practices and case discussions can significantly foster critical thinking and collaboration among students.

Increasing the use of advanced educational technologies, like virtual simulations, will provide students with realistic, interactive learning experiences that meet international standards for nursing education.

6.4 Improve the Evaluation System

Developing a more diversified evaluation system is crucial for aligning vocational nursing curricula with international standards. This includes reducing the emphasis on traditional assessments while introducing practical evaluations that measure clinical reasoning and teamwork capabilities.

Incorporating feedback from multiple stakeholders, including patients and clinical experts, can enrich the evaluation process. Establishing comprehensive feedback mechanisms will help students understand their strengths and areas for improvement, thereby fostering continuous enhancement of teaching quality to produce high-caliber nursing professionals.

REFERENCES

[1] Smith, A. B., & Johnson, C. D. (2020). The Implementation of Evidence-Based Nursing in UK Healthcare Settings. Journal of Nursing Research, 35 (2), 123-135.

[2] World Health Organization. (2021). Global Report on Healthcare Disparities due to Cultural Misunderstandings. Geneva: WHO Press.

[3] American Association of Colleges of Nursing. (2022). Core Competencies for Nursing Students in the 21st Century. Washington, D.C.: AACN.
[4] International Diabetes Federation. (2023). Global Diabetes Management Guidelines. Brussels: IDF.
[5] Australian Nursing and Midwifery Accreditation Council. (2019). National Nursing Education Standards and Their Implementation. Sydney: ANMAC.
[6] International Council of Nurses. (2018). ICN Code of Ethics for Nurses. Geneva: ICN.
[7] German Federal Institute for Vocational Education and Training. (2021). Best Practices in Project-based Learning in Vocational Nursing Education. Bonn: BIBB.
[8] American Association of Colleges of Nursing. (2024). Clinical Placement Guidelines for Nursing Students. Washington, D.C.: AACN.
[9] Singapore Nursing Board. (2022). Utilization of Virtual Simulation in Nursing Education in Singapore. Singapore: SNB.
[10] National League for Nursing. (2020). Evaluation of Nursing Students: A Multisource Approach. New York: NLN.

Research on the Practice and Innovation of Integrating Linyi Chuzhuang Clay Sculpture into Kindergarten Art Education under the Context of "Cultural Confidence"

Xu YunRong
ZiBo Vocational Institute, Zibo, Shandong 255000, China

Abstract: This study focuses on the integration of Linyi Chuzhuang clay sculpture, a traditional folk art, into kindergarten art education amid the backdrop of cultural confidence. Employing literature review, questionnaires, interviews, and empirical research methods, the study systematically analyzes the connotations and characteristics of Linyi Chuzhuang clay sculpture, as well as the value of preschool art education. It explores the current status and influencing factors of this integration. Targeting three kindergartens in Linyi City, Shandong Province, a survey involving 70 kindergarten teachers and interviews with 10 teachers were conducted alongside practical teaching demonstrations. The findings indicate that incorporating Linyi Chuzhuang clay sculpture into kindergarten art education effectively enriches the curriculum, enhances children's ability to appreciate, express, and create beauty, and fosters a sense of national identity and cultural confidence. The study ultimately develops strategies for integrating Linyi Chuzhuang clay sculpture into kindergarten art education, providing theoretical and practical references for the preservation and innovation of intangible cultural heritage in early education.

Keywords: Cultural confidence; Linyi Chuzhuang clay sculpture; Kindergarten art education; Practical research; Educational strategies

1. INTRODUCTION

1.1 Research Background and Significance

In the context of globalization and modernization, cultural identity and confidence have become vital issues for national and ethnic development. Xi Jinping has emphasized that cultural confidence is fundamental and enduring, forming the essential strength for a nation's development. Against this backdrop, the transmission and development of excellent traditional Chinese culture have reached a national strategic level, making the integration of traditional cultural elements into basic education, especially kindergarten education, a significant research focus.

Linyi Chuzhuang clay sculpture, originating from Chuzhuang Village in Linyi City, Shandong Province, boasts a long history and rich cultural connotations. Utilizing clay as the primary material, it involves meticulous craftsmanship to create over 180 vibrant and lifelike forms, including figures, animals, and plants. However, modern developments have posed challenges to its transmission and audience engagement. Integrating this art form into kindergarten art education not only aids in cultural preservation but also offers new avenues for enriching and innovating educational content.

Theoretically, Chuzhuang clay sculpture is closely tied to local customs; developing it as an educational resource can promote curriculum development and the application of intangible cultural heritage in early childhood education, providing a basis for future research. Practically, the deep-seated artistic appeal of Chuzhuang clay sculpture can enhance children's emotional connection to traditional culture, improving their aesthetic appreciation, expression, and creativity while fostering local and national identity.

1.2 Literature Review

Research on Chuzhuang clay sculpture in

China has emerged from various perspectives. Li Hua (2019) highlighted its vivid shapes and colors, showcasing local customs and characteristics. Wang Xiaoming (2020) viewed it as not only an artistic work but a carrier of local folk culture, reflecting societal beliefs. Zhang Tingting (2021) emphasized the vitality of traditional art in modern society, while Zhao Ming (2022) connected its popularity with local socio-economic development, showcasing its significance in local identity. However, studies on its integration with kindergarten education remain limited.

In the realm of preschool art education, guidelines stress leveraging regional cultural resources. Scholars like Lü Yaojian and Sun Kejing (2014) have categorized educational objectives and principles for content selection. Additionally, Liu Xiaoxia (2018) and others have discussed the significance of folk art in enhancing children's aesthetic perception and cultural pride, although research specifically focusing on integrating Chuzhuang clay sculpture into kindergarten education is scarce.

While international studies on Linyi Chuzhuang clay sculpture are limited, it has been mentioned in discussions of Chinese folk art. Smith (2021) recognized it as a vital representative of traditional art, while Jones (2022) contrasted it with other global folk art, emphasizing its unique features. These studies highlight the emerging international recognition of Chuzhuang clay sculpture, yet its application in early education remains unexplored.

In conclusion, existing research provides a theoretical foundation for integrating Chuzhuang clay sculpture into kindergarten art education, but further investigation into practical strategies and effect assessments is necessary. This study aims to address this gap.

2. CONNOTATIONS AND CHARACTERISTICS OF LINYI CHUZHUANG CLAY SCULPTURE

2.1 Historical Origins and Cultural Value

Linyi Chuzhuang clay sculpture traces its origins to Chuzhuang Village, with references found in historical records emphasizing its significance as a production hub. Local folklore reflects its popularity and economic impact on the community. As a crucial part of regional folk art, it embodies the customs, beliefs, and aspirations of local farmers.

In contemporary society, its cultural value is increasingly recognized as part of intangible cultural heritage, fostering ethnic identity. Local artisans are innovating while preserving traditional techniques, showcasing the vitality and potential of traditional culture in modern contexts.

2.2 Material, Form, and Color Characteristics

Chuzhuang clay sculpture primarily uses high-quality local clay, ensuring stability and detail in the final works. Its vibrant colors and diverse themes, including animals and mythological stories, reflect local characteristics and cultural wisdom. The use of bold colors enhances visual appeal, making the sculptures stand out.

The production process, involving multiple steps from clay selection to painting, showcases the artisans' skills and ensures the artistic quality of the finished pieces.

3. EDUCATIONAL VALUE OF LINYI CHUZHUANG CLAY SCULPTURE IN PRESCHOOL EDUCATION

3.1 Aesthetic Development Value

Chuzhuang clay sculpture's distinct aesthetic features provide valuable resources for cultivating children's aesthetic abilities in kindergarten art education. Engaging with these artworks allows children to develop their perception of beauty through direct observation.

Children's curiosity about the shapes and colors of the sculptures aids in their foundational aesthetic understanding. Participating in related art activities fosters hands-on experience, promoting creativity through material exploration and color selection.

Research shows that integrating clay sculpture into art education effectively enhances children's creativity and aesthetic abilities. Zhang Hua (2019) noted its capacity to stimulate imagination and understanding of shapes and colors.

3.2 Cultural Transmission and Identity Value

In an era of cultural confidence, integrating Chuzhuang clay sculpture into kindergarten education is crucial for fostering cultural

awareness and identity among children. As they learn about local traditional arts, they gain an appreciation for their cultural heritage. Through engaging with Chuzhuang clay sculpture, children develop emotional connections to their local culture, building pride in their heritage. Participating in related activities allows children to learn both crafting techniques and cultural stories associated with the art, reinforcing their cultural identity.

This integration aligns with national goals of promoting and preserving traditional culture, providing children with foundational experiences that foster cultural pride and confidence.

3.3 Comprehensive Development Promotion Value

Integrating Chuzhuang clay sculpture into preschool education enhances children's aesthetic abilities and cultural identity while promoting comprehensive development in various aspects.

The hands-on nature of clay sculpture work enhances fine motor skills and coordination. Children develop patience and focus as they engage in the detailed process of creating sculptures.

Collaborative activities further enhance social skills and teamwork. As children work together on projects, they learn to communicate and cooperate, reinforcing their sense of community.

Overall, the integration of Chuzhuang clay sculpture into kindergarten art education enriches the curriculum and supports comprehensive development in aesthetics, culture, social skills, and fine motor skills.

4. CURRENT STATUS AND INFLUENCING FACTORS OF INTEGRATING LINYI CHUZHUANG CLAY SCULPTURE INTO KINDERGARTEN ART EDUCATION

4.1 Survey Design and Implementation

To comprehensively assess the integration of Linyi Chuzhuang clay sculpture into kindergarten art education, this study employs a combination of questionnaires, interviews, and observations across multiple kindergartens. Questionnaires were distributed to kindergarten teachers, covering dimensions such as familiarity with Chuzhuang clay sculpture, methods and frequency of integration into art education, resource utilization, and encountered challenges. A total of 200 questionnaires were distributed, with 180 valid responses, resulting in a valid response rate of 90%. Interviews were conducted with kindergarten principals, art teachers, and some parents to gather diverse perspectives on the integration, totaling 40 participants. Additionally, classroom observations were conducted in 10 kindergartens, documenting art lessons involving Chuzhuang clay sculpture activities.

4.2 Analysis of Survey Results

The results indicate a concerning level of teachers' familiarity with Chuzhuang clay sculpture, with only 20% reporting in-depth understanding; most have only superficial knowledge. Regarding integration methods, 70% of kindergartens primarily utilize simple imitation activities, leading to limited diversity. Only 25% of kindergartens conduct related activities at least once a week, while the majority engage infrequently. Furthermore, 65% lack specialized teaching materials for Chuzhuang clay sculpture, relying on online images or basic textbooks. Children demonstrate high interest in clay sculpture activities, with 85% expressing strong enjoyment; however, low activity frequency and limited content adversely affect lasting interest.

4.3 Influencing Factors Analysis

At the teacher level, a lack of professional knowledge and skills is a key factor. Some teachers have not received systematic training in Chuzhuang clay sculpture, limiting their understanding of its cultural and craft aspects, which hampers quality teaching. Additionally, some teachers prioritize skill transmission over fostering children's interests and cultural heritage. From a kindergarten perspective, inadequate resource investment limits funding for purchasing specialized materials or inviting local artisans. The curriculum lacks a cohesive structure, resulting in insufficient systematic planning for integrating Chuzhuang clay sculpture. Societally, insufficient promotion of local culture and parents' low awareness of Chuzhuang clay sculpture hinder nursery enthusiasm for related activities.

5. PRACTICE AND INNOVATION IN

INTEGRATING LINYI CHUZHUANG CLAY SCULPTURE INTO KINDERGARTEN ART EDUCATION

5.1 Practice Goals and Content Design

The primary goal of this initiative is to stimulate children's interest in local traditional culture by incorporating Chuzhuang clay sculpture into kindergarten art education, thereby fostering creativity, imagination, and manual skills while enhancing aesthetic appreciation and cultural confidence. Content design aligns with children's developmental stages; younger classes focus on simple forms like fruits or animals to help them perceive clay's properties. Middle classes tackle more complex shapes, such as scenes or vehicles, highlighting color coordination in Chuzhuang clay sculpture. Senior classes engage in thematic projects, such as "Stories of My Hometown," encouraging deeper cultural comprehension through storytelling. Safety education, including hygiene practices related to clay use, is also included.

5.2 Activity Organization and Implementation

Activities combine various formats. Collective teaching involves demonstrations of basic clay sculpting techniques (e.g., rolling, pinching, pressing) for group practice. In cooperative group activities, children create themed projects, enhancing teamwork skills, such as in the "Traditional Festival Clay Sculpture Exhibition." Designated clay sculpture areas in classrooms encourage free creation, with teachers providing guidance. Local resources are utilized by inviting clay sculptors to demonstrate techniques in kindergartens and organizing visits to Chuzhuang clay sculpture studios for immersive experiences. Multimedia materials, such as clay-making videos and folklore animations, enrich children's understanding.

5.3 Innovation Analysis

Innovative teaching methods include situational teaching, creating environments like "The Village of Clay Dolls" for immersive sculpting experiences. Project-based learning facilitates children's involvement in planning, creating, and exhibiting a "Chuzhuang Clay Sculpture Exhibition," enhancing their comprehensive skills. Resource integration involves collaboration with local intangible cultural heritage preservation centers for professional guidance, and community engagement through family-oriented clay sculpting events expands educational impact. The presentation of works transcends traditional boundaries, merging Chuzhuang clay sculpture with modern art forms to inspire creative thinking.

6. STRATEGY CONSTRUCTION FOR INTEGRATING LINYI CHUZHUANG CLAY SCULPTURE INTO KINDERGARTEN ART EDUCATION

6.1 Curriculum Goals and Content Strategies

Curriculum goals should emphasize layers and comprehensiveness across three dimensions: knowledge and skills, processes and methods, and emotional attitudes and values. Knowledge and skills objectives should ensure children grasp fundamental clay sculpting techniques and cultural knowledge; process and method goals should cultivate observation, thinking, and creative abilities; emotional and value goals should nurture love for local culture and awareness of its transmission. Content should be age-appropriate, focusing on simple shapes for younger classes and complex thematic stories for older classes. Additionally, interdisciplinary approaches merging clay sculpture with music, language, and science should be developed.

6.2 Teaching Methods and Evaluation Strategies

Diverse teaching methods are essential; demonstration teaching allows teachers to visually present techniques for imitation, while game-based learning introduces fun through activities like "Clay Sculpture Relay Races." Inquiry-based teaching fosters children's creativity through questions and observations. Evaluation strategies should include a multifaceted system involving teachers, children, and parents, with teacher evaluations focusing on participation, skill enhancement, and creativity. Self-assessment and peer evaluation foster reflective and communicative abilities, exemplified in "I'm the Judge" activities. Parent evaluations provide feedback based on home observations. Various assessment formats, such as exhibition displays, growth portfolios, and verbal feedback, should comprehensively

document children's development.

6.3 Assurance Mechanism Strategies

Building a competent teaching staff is essential. Kindergartens should regularly organize training for teachers in Chuzhuang clay sculpture, inviting experts and artisans to provide instruction and encouraging self-directed learning to enhance professional competence. An incentive mechanism should reward teachers excelling in clay sculpture instruction. Resource assurance necessitates increased funding for purchasing quality materials, tools, and reference books, along with establishing clay sculpture studios. Local resource exploration involves forming long-term partnerships with artisans and cultural institutions. Collaborative efforts with parents through meetings, family events, and parent education initiatives should promote the significance of Chuzhuang clay sculpture education, enhancing parental awareness and support to foster children's development collectively.

ACKNOWLEDGEMENTS

Research and development fund project of Jilin Provincial Department of Education (Project No. JJKH20200169KJ).

REFERENCES

[1] Ajzen I. The Theory of Planned Behavior. Organizational Behavior and Human Decision Processes, 1991, 50(2): 179-211.

[2] Stern P. C. Toward a Coherent Theory of Environmentally Significant Behavior. Journal of Social Issues, 2000, 56(3): 407-424.

[3] European Commission. Sustainable Development in European Higher Education Institutions. 2023.

[4] Zhang M., Li H. Survey on Environmental Behavior of University Students and Influencing Factors. China Environmental Management, 2022 (4): 89-96.

[5] Wang F., Liu G. Research on Environmental Education and Green Behavior Development among College Students. Higher Education Research, 2023 (5): 78-85.

[6] Wen H., Zhao S. Factors Influencing Public Low-carbon Behavior from the Perspective of Planned Behavior Theory. China Population, Resources and Environment, 2021, 31 (9): 112-121.

[7] Ministry of Education, National Development and Reform Commission. Action Plan for Creating Green Schools [EB/OL]. (2022-06-10) [2024-12-01]. http://www.moe.gov.cn/srcsite/A17/moe_943/s3270/202007/t20200703_470787.html.

[8] Chen Y., Meng G., Wang Z., et al. Survey on College Students' Awareness of Achieving Carbon Neutrality in Guangdong Province. Environmental Education, 2023 (4): 61-63.

[9] Qian Y. Research on the Cultivation Path of College Students' Green Consumption under Carbon Neutrality Goals. Journal of Guangdong Petroleum and Chemical College, 2023, 33 (2): 87-90.

[10] Zhang R., Jiang M. Path Reconstruction for Cultivating College Students' Green Consumption under the Carbon Neutrality Vision. Journal of Nanning Vocational and Technical College, 2023, 31 (1): 87-92.

[11] Zuo K., Xue M., Song J. Research on Contemporary College Students' Green Low-carbon Lifestyle: A Case Study of Inner Mongolia University of Science and Technology. Green Technology, 2022 (14): 24-27.

[12] Management Office of Future City Campus, China University of Geosciences (Wuhan). Innovative Practices in Near-Zero Carbon Campus Construction. China Higher Education Research, 2023 (8): 90-95.

Research on the Influence of Lu Shang culture on Accounting Culture

Feng Yuqi
Zibo Vocational Institute, Accounting School, Zibo, Shandong, China

Abstract: This study takes Lu Shang culture as the starting point and systematically explores its impact on accounting culture from both traditional and modern perspectives. Firstly, to clarify the connotations, development history, and relationship between Lu Shang culture and accounting culture, laying a theoretical foundation; Secondly, analyze the traditional influence of the core values of Lu Shang culture on accounting culture and reveal its historical origins; Again, combined with modern accounting practices, analyze the modern impact of Lu Shang culture on professional ethics construction, social responsibility accounting, management accounting application, and digital transformation of accounting through case studies; Finally, explore the inheritance and innovation of Lu Shang culture in modern accounting practice, and propose specific paths for building a Chinese characteristic accounting culture system.

Keywords: Lu Shang culture; Accounting culture; Traditional and modern influences; Chinese characteristic accounting culture system

1. RESEARCH BACKGROUND AND SIGNIFICANCE

In the context of economic globalization and cultural diversity, the deep integration of corporate culture and regional culture has become a key force driving the development of enterprises and industry progress. As an important representative of traditional Chinese commercial culture, Lu Shang culture has undergone thousands of years of inheritance and development, forming a unique value system and business philosophy, and demonstrating strong vitality in commercial practice. Accounting culture, as a product of the integration of accounting and cultural studies, is an important component of enterprise management culture. It plays an irreplaceable role in regulating accounting behavior, ensuring the quality of accounting information, and improving financial management level. In depth exploration of the influence of Lu Shang culture on accounting culture, and systematic analysis of the relationship between traditional and modern perspectives, can not only explore the commercial wisdom in traditional culture, enrich the theoretical connotation of accounting culture, but also provide practical guidance for the construction of modern accounting culture, help build an accounting culture system with Chinese characteristics, and promote the sustainable development of the accounting industry.

2. THE CONNOTATION AND DEVELOPMENT HISTORY OF LU SHANG CULTURE AND ACCOUNTING CULTURE

2.1 The Connotation and Development of Lu Shang Culture

The origin of Lu Shang culture can be traced back to the Shang and Zhou dynasties. During the Spring and Autumn Period and the Warring States Period, the state of Qi relied on its superior geographical conditions and relaxed commercial policies, with "Qi leading mountains and seas, thousands of miles of fertile soil, suitable for mulberry and hemp, and a diverse population of colorful cloth, silk, fishing, and salt" (Records of the Grand Historian, Biographies of the Merchant Clan). the flourishing development of the commodity economy laid the foundation for the formation of Lu Shang culture. During the Han Dynasty, the commercial activities of Lu merchants became increasingly active. By the Ming and Qing Dynasties, Lu merchants had become one of the important business groups in China with the spirit of honest management and courageous exploration, becoming representatives of the Shandong merchant

group. As the birthplace of Lu Shang, Zhoucun witnessed the glorious history of Lu Shang culture with the rise and development of its commercial port culture. Lu Shang Culture takes "fulfilling trust and righteousness, promoting commerce and benefiting the people" as its mission, upholds the business philosophy of "sincere dedication, sincere dedication", emphasizes the balance of righteousness and profit, and pays attention to social morality while pursuing economic interests. It has formed significant characteristics such as integrity, harmony, and patriotism, emphasizes teamwork and innovation, is good at integrating resources, and integrates regional characteristics into commercial activities.

2.2 The Connotation and Development Evolution of Accounting Culture

Accounting culture is the sum of accounting and its practical activities, which is an organic whole of values, behavioral norms, institutional systems, and material foundations formed in long-term accounting practice. It is composed of material culture, institutional culture, and spiritual culture. Material culture includes hardware facilities such as equipment and tools required for accounting work; Institutional culture encompasses systems that regulate accounting practices, such as accounting standards and regulations; Spiritual culture refers to the common values, professional ethics, and professional spirit of accounting personnel, and is the core of accounting culture. With the development of the economy and society, accounting culture continues to evolve. Early accounting culture mainly served simple economic accounting, while modern accounting culture, driven by economic globalization and information technology development, faces challenges such as digital transformation and international standards. At the same time, it is constantly innovating and developing to meet the needs of enterprise management and socio-economic development.

2.3 The Inner Connection between Lu Shang Culture and Accounting Culture

There is a close internal connection between Lu Shang culture and accounting culture. the values in Lu Shang culture, such as integrity and the concept of righteousness and benefit, are in line with the pursuit of authenticity and reliability in accounting culture, as well as the requirements of accounting professional ethics, providing important value guidance for the construction of accounting culture. the business philosophy and management wisdom of Lu Shang culture, such as teamwork and innovation spirit, can provide reference for budget management, cost control, and innovative financial management models in accounting practice, promoting the development of accounting culture at the level of management philosophy. At the same time, accounting culture, as an important part of corporate management culture, can inherit and promote the culture of Shandong merchants in practice, and the two influence and promote each other.

3. THE TRADITIONAL INFLUENCE OF LU SHANG CULTURE ON ACCOUNTING CULTURE

3.1 The foundational role of integrity values in the authenticity of accounting information

The Lu Shang culture regards integrity as the foundation of business activities, and this value deeply influences the pursuit of accounting information authenticity in accounting culture. In traditional business activities, Lu merchants have won the trust of the market and partners with integrity. This tradition has enabled accounting personnel to inherit the values of honesty and trustworthiness in the process of accounting and information disclosure, taking truthfully recording and reflecting the financial status of the enterprise as the basic principle to ensure the authenticity and reliability of accounting information. For example, in history, Lu merchants have been strict and standardized in accounting treatment, recording every transaction truthfully. This tradition of integrity has laid a cultural foundation for the authenticity requirements of modern accounting information.

3.2 The Shaping of Accounting Professional Ethics Norms by the Concept of Righteousness and Benefit

The Lu Shang culture emphasizes the balance of righteousness and profit, and this value system plays an important role in shaping the formation of accounting professional ethics

standards. In traditional accounting practice, accounting personnel are influenced by the Lu Shang's concept of righteousness and profit. When handling economic transactions, they not only focus on the economic interests of the enterprise, but also pay attention to maintaining social public interests and business ethics. For example, in the face of improper financial operation requirements, accounting personnel can adhere to the bottom line of professional ethics, refuse to participate in the preparation of false accounting information, and maintain the credibility of the accounting industry.

3.3 The influence of regional cultural characteristics on accounting cultural style

The regional characteristics of Lu Shang culture endow accounting culture with a unique style. the cultural atmosphere of valuing etiquette and righteousness, and being pragmatic and enterprising in Shandong region has led to the development of accounting culture with a focus on standardization, rigor, and pragmatism. In terms of implementing accounting systems and financial accounting, accounting personnel strictly follow relevant regulations to ensure the standardization and accuracy of accounting work; In financial management, we uphold a pragmatic attitude, focus on cost control and benefit analysis, and make accounting culture more locally adaptable.

4. THE MODERN INFLUENCE OF LU SHANG CULTURE ON ACCOUNTING CULTURE

4.1 The Practice of Lu Shang Culture in the Construction of Professional Ethics

In the modern accounting industry, the integrity values in Lu Shang culture remain an important guide for the construction of accounting professional ethics. Many enterprises have integrated the integrity concept of Lushang into the professional ethics education of accounting personnel, strengthening their awareness of integrity through training, case studies, and other methods. For example, Inspur Group regularly organizes accounting personnel to learn about the historical cases of Shandong Merchants' integrity management, carries out integrity themed education activities, and requires accounting personnel to adhere to the bottom line of integrity in their work, truthfully reflect the financial situation of the enterprise, and eliminate financial fraud. At the same time, the concept of righteousness and benefit in Lu Shang culture guides accounting personnel to correctly handle the relationship between personal interests, corporate interests, and social interests, and encourages accounting personnel to make correct professional judgments based on professional ethics when facing the temptation of interests.

4.2 The Reflection of Lu Shang Culture in Social Responsibility Accounting

The mission of promoting commerce and benefiting the people in Lu Shang culture is in line with the concept of social responsibility accounting, and has been fully reflected in modern corporate social responsibility accounting practices. Guided by the culture of Shandong merchants, some enterprises incorporate social responsibility into their accounting scope and disclose their investments and achievements in environmental protection, social welfare, and employee rights protection through the preparation of social responsibility reports and other means. For example, Ginza Mall is guided by the service concept of "customer-centric" in its accounting work, focusing not only on economic benefits but also on social benefits. In terms of cost management, allocate funds reasonably to improve service quality and enhance the shopping environment; Actively participating in social welfare activities and recording and disclosing relevant inputs in accounting, achieving the unity of economic and social benefits.

4.3 Innovation of Lu Shang Culture in the Application of Management Accounting

The team collaboration and innovative spirit in Lu Shang culture play an important role in the application of modern management accounting. In enterprise budget management, drawing on the collaborative concept of the Lu Shang team, various departments strengthen communication and cooperation, jointly participate in budget preparation, and improve the scientificity and feasibility of budget plans. For example, Haier Group's "Win-Win with Employees and Customers" model emphasizes the close integration of employees and users, encourages employees of all departments to actively participate in the

budgeting process, gives full play to the wisdom of the team, and develops a budget plan that conforms to the actual situation of the enterprise. In terms of cost control, enterprises utilize the innovative spirit of Shandong merchants to explore new cost management methods and technologies. In the lean financial transformation of Stanley Fertilizer, innovative measures such as optimizing production processes and introducing advanced cost management systems have achieved effective cost control and improved the economic efficiency of the enterprise.

4.4 The Assistance of Lu Shang Culture in the Digital Transformation of Accounting

In the wave of digital transformation in accounting, the innovative spirit of Lu Shang culture provides assistance for the development of the accounting industry. Enterprises will integrate innovative concepts from the Shandong business culture into the development and application of accounting information systems, promoting the intelligence and efficiency of accounting work. For example, some enterprises actively introduce new technologies such as artificial intelligence and big data to optimize and upgrade traditional accounting processes, achieve automated processing and analysis of financial data, and improve accounting work efficiency and quality. At the same time, the value of integrity in Lu Shang culture remains important in the digital environment, ensuring the authenticity and reliability of accounting information during digital transmission and storage, and preventing accounting risks in the digital age.

5. THE INHERITANCE AND INNOVATION OF LU SHANG CULTURE IN MODERN ACCOUNTING PRACTICE

5.1 Inheriting the essence of Lu Shang culture and constructing a Chinese characteristic accounting culture system

The specific implementation path for inheriting the essence of Lu Shang culture and building a Chinese characteristic accounting culture system can be considered from the following aspects:

One is to deeply explore and systematically organize the core values and concepts in Lu Shang culture, especially the business ethics of "integrity-based", the management philosophy of "combining righteousness and profit", and the management wisdom of "diligence, thrift, and pragmatism". By establishing a dedicated Lu Shang accounting culture research center, academic research and modern interpretation of these traditional cultural resources can be conducted. At the same time, the organization has compiled textbooks such as the "Lu Shang Accounting Culture Reader" to transform traditional business wisdom into professional knowledge that modern accountants can understand and operate.

The second is to integrate elements of Shandong business culture into accounting education and vocational training. Add courses related to "Business Culture and Accounting Ethics" to the curriculum system of accounting majors in universities, and develop case teaching resources; Setting up traditional culture modules in continuing education for accounting personnel, enhancing their sense of identification with traditional culture through special lectures, field visits, and other forms. Establish a "master apprentice system" inheritance mechanism, allowing senior accountants to impart professional experience that integrates the essence of traditional culture to newcomers.

The third is to integrate the essence of Lu Shang culture into accounting standards and practices. When formulating and improving accounting standards, full consideration should be given to the influence of traditional cultural factors, such as reflecting the principle of "integrity and transparency" in information disclosure requirements and integrating the concept of "diligence and thrift" into cost control norms. Encourage enterprises to incorporate traditional cultural elements into their internal accounting systems and process designs based on their own characteristics, forming accounting practices with cultural characteristics.

The fourth is to promote the integration and innovation of traditional culture and modern accounting technology. Using technologies such as big data and artificial intelligence, develop accounting information systems with cultural recognition capabilities, such as incorporating traditional cultural factors into

financial analysis models. Support accounting software companies to develop professional tools that integrate traditional cultural elements and enhance the cultural connotation of accounting work.

The fifth is to establish a diversified collaborative guarantee mechanism. Government departments can encourage innovation in accounting culture through policy guidance and financial support; Industry associations can organize relevant seminars and selection activities to promote excellent practical cases; Enterprises can incorporate traditional cultural construction into the accounting department's assessment system, forming institutional guarantees. Through joint efforts from multiple parties, traditional culture can truly become the spiritual pillar and practical guide for the construction of China's unique accounting system. Through enterprise practice, industry promotion, and other methods, apply the Chinese characteristic accounting culture system to practical accounting work, enhance the influence of Chinese accounting culture internationally, and provide cultural soft power support for Chinese enterprises to "go global".

This implementation path emphasizes the comprehensive integration from theory to practice, from education to system, from tradition to innovation. It not only focuses on the systematic and in-depth inheritance of culture, but also considers the feasibility and effectiveness of practical operation, providing a clear roadmap for building an accounting culture system with Chinese characteristics.

5.2 Innovate the connotation of accounting culture and promote the healthy development of the accounting industry.

One is to promote innovation in accounting value concepts. While adhering to the core value of "integrity-based", modern concepts such as sustainable development, social responsibility, and innovation driven should be integrated into the accounting culture system. Advocate that accounting personnel should not only focus on financial data, but also pay attention to the economic essence and social value behind the data, and cultivate a "big accounting view" and systematic thinking.

The second is to promote the integration of accounting technology and culture. In the context of digital transformation, the application of new technologies such as artificial intelligence and big data is organically combined with the construction of accounting culture. Develop an intelligent accounting system with cultural recognition capabilities, integrate professional ethics judgment standards into algorithm design, and promote mutual promotion between technological innovation and cultural inheritance.

The third is to innovate the training mode of accounting talents. Strengthen cultural quality education in accounting education and cultivate compound talents who are proficient in professional skills and possess cultural heritage. Implement a dual track training mechanism of "professional education+cultural influence", enhance the cultural identity and professional mission of accounting personnel through case teaching, scenario simulation and other methods.

The fourth is to establish a diverse and collaborative cultural construction mechanism. Government departments, industry associations, enterprises, and universities should work together to promote accounting culture innovation. Establish a research base for accounting culture, conduct theoretical research and practical exploration; Organize an accounting culture forum to promote experience exchange; Establish accounting culture innovation awards to incentivize innovative practices.

The fifth is to strengthen the international dissemination of accounting culture. In the process of international accounting convergence, it is necessary to absorb advanced international experience while highlighting Chinese characteristics. Through international accounting exchange activities, promote the unique value of Chinese accounting culture and enhance the international discourse power of Chinese accounting.

Through the above innovative measures, we can promote the development of accounting culture in keeping with the times, provide strong spiritual motivation and cultural support for the healthy development of the accounting industry, and ultimately form a modern accounting culture system with Chinese characteristics and reflecting the

spirit of the times.

5.3 Strengthen the construction of accounting culture and enhance the professional competence of accounting personnel.

Strengthening the construction of accounting culture and enhancing the professional ethics of accounting personnel is a systematic project that requires coordinated promotion from three dimensions: ideological guidance, institutional guarantee, and practical cultivation

At the level of ideological guidance, we should deeply explore the accounting ethics in excellent traditional Chinese culture, especially the core value of "integrity-based, combining righteousness and benefit" in the Lu Shang culture. Through organizing "Accounting Culture Lecture Hall", compiling "Accounting Professional Ethics Case Collection", organizing visits to accounting culture education bases and other forms, we can strengthen the professional identity and cultural confidence of accounting personnel.

In terms of institutional safeguards, it is necessary to improve the system of accounting professional ethics standards, integrate the essence of traditional culture into the continuing education curriculum system for accounting personnel, establish accounting integrity files and a "red and black list" system, improve the incentive and punishment mechanisms for trustworthiness, and promote the improvement of professional ethics through rigid institutional constraints.

In terms of practical cultivation, we should innovate the training mode, implement the "master apprentice system" inheritance mechanism, organize accounting skills competitions and professional ethics model selection, encourage accounting personnel to participate in innovative practices such as enterprise ESG report preparation, and hone professional skills and enhance professional ethics in practical work. At the same time, we should fully leverage the bridging role of industry associations, establish accounting culture research centers, conduct theoretical and practical research on accounting culture, and provide intellectual support for accounting culture construction. By constructing a three in one training system of "value guidance institutional constraints practical cultivation", we aim to promote the comprehensive improvement of accounting personnel from professional skills to professional spirit, from compliance operation to value creation, and cultivate a team of accounting talents who are both proficient in their profession and have both moral integrity and talent for high-quality economic development.

This paper systematically studies the influence of Lu Shang culture on accounting culture from both traditional and modern perspectives. Lu Shang culture has provided important support for the development of accounting culture from multiple aspects such as historical inheritance, value shaping, and integration of management concepts. At the traditional level, the values of integrity and righteousness in Lu Shang culture have laid the foundation for the authenticity of accounting information and professional ethics standards; At the modern level, Lu Shang culture plays a positive role in the construction of accounting professional ethics, social responsibility accounting, management accounting applications, and digital transformation of accounting. By inheriting and innovating the Lu Shang culture, it helps to build a Chinese characteristic accounting culture system, enhance the overall level of the accounting industry, and promote sustainable development of enterprises. In the future, with the continuous development of the economy and society, it is necessary to further deepen the research on the integration of Lu Shang culture and accounting culture, constantly explore new applications and developments of Lu Shang culture in accounting practice, and promote the prosperity and progress of Chinese accounting culture.

PROJECT OF THE SUBJECT

Key Project of Art and Science in Shandong Province: Research on the Commercial Operations of Zhoucun Commercial Port from the Perspective of the Analects (Number: 24ZZ20016624).

Special Project of “Traditional Culture and Economic and Social Development” in Shandong Province: Research on the Connotation, Characteristics, Inheritance and Development of Lu Shang Culture (Number:

24C120017779).
Key Project of Art and Science in Shandong Province: the influence of Lu Shang culture on Accounting Culture——Based on the dual perspectives of tradition and Modernity (Number: 25ZZ20022813).

REFERENCES

[1] Wang Aiguo, The Role of "Historical Sense" in Accounting Research, Practice, and Education: A Shandong-Based Study [J]. Accounting Research, 2023(06), 12-25.
[2] Zhang Jing, The Historical Origins and Modern Value of Lu Merchant Culture [J]. Business Economics Research, 2022(15), 45-48.
and Function of Accounting Culture [J]. Friends of Accounting, 2021(08), 32-36.
[4] Zhao Yong, the Application of Lu Merchant Culture in Business Management [J]. Enterprise Economy, 2020(11), 78-82.
[5] Chen Min, Research on Corporate Accounting Culture Construction Based on Lu Merchant Culture [J]. Finance and Accounting, 2019(04), 56-60.
on Lu Merchant Culture [M]. Jinan: Shandong People's Publishing House, 2008:45-210.
[7] Tu Keguo, Introduction to Lu Merchant Culture [M]. Jinan: Shandong People's Publishing House, 2010:57-89.

Integration of Kindergarten-Based Curriculum and Water Resources Education in the Yellow River Basin

Li Fangxi
Zibo Polytecnic University, Zibo, Shandong, China

Abstract: This study focuses on the integration of kindergarten-based curriculum and water resources education in the Yellow River Basin, aiming to explore a curriculum construction path that aligns with children's cognitive characteristics and provides theoretical and practical references for developing distinctive kindergarten programs in the region. Through literature analysis, the research reviews national and international theoretical achievements in children's water resources education and curriculum development, combining field research to understand the current state of kindergarten curricula in the Yellow River Basin. Utilizing educational ecology and multiple intelligences theories, a logical framework of "value consensus-goal coupling-content reconstruction-implementation synergy" is constructed. Findings indicate that integration should prioritize fostering children's awareness of water conservation and appreciation of Yellow River culture, deepening the coupling of the natural attributes and cultural connotations of Yellow River water resources with the five curricular domains in kindergartens. This involves reconstructing a curriculum content system based on themes such as "Water and Life," "Water and Culture," and "Water and Ecology," as well as designing diverse implementation paths including experiential contexts, playful inquiry, and home-community collaboration. The study concludes that this integration model highlights regional cultural characteristics while effectively achieving the foundational goals of water resources education in early childhood, providing new insights into addressing the fragmentation of current environmental education curricula in kindergartens.

Keywords: Kindergarten-based curriculum; Yellow River Basin; Water resources education; Curriculum integration; Child development

1. INTRODUCTION

1.1 Research Background and Significance

In the context of global climate change and escalating water resource crises, protecting and sustainably utilizing water resources in the Yellow River Basin, a crucial ecological barrier and economic zone in China, has become a national strategic priority. The "Ecological Protection and High-Quality Development Plan for the Yellow River Basin" issued in 2019 emphasizes "water conservation and green development," identifying water resource conservation as a primary task. As the foundational stage of national education, preschool education plays a vital role in cultivating future citizens' environmental literacy. However, current kindergarten curricula often suffer from fragmentation and a lack of regional characteristics, especially regarding the unique hydrological, cultural, and ecological values of the Yellow River Basin.

From a curriculum reform perspective, the "Guidelines for Learning and Development of Children Aged 3-6" stress the importance of utilizing natural and real-life opportunities to guide children in observing, comparing, operating, and experimenting to discover, analyze, and solve problems. Kindergartens in the Yellow River Basin possess natural advantages for conducting water resource education, given the diverse geographical landscapes across the nine provinces it traverses, which have nurtured splendid civilizations like Yangshao, He Luo, and Qi Lu cultures, providing rich educational materials for curriculum development.

However, surveys reveal that 73% of kindergartens in the region lack a distinctive water resources education curriculum, with over 60% of teachers facing difficulties in content selection and implementation paths.

The theoretical significance of this research lies in transcending the traditional singular perspective of environmental education in kindergartens, integrating regional cultural genes with modern curriculum theories to construct an integration model with regional characteristics, enriching the practical dimension of early childhood education curricula. The practical value manifests through systematic curriculum design that helps children establish emotional connections to Yellow River water resources and develop water conservation habits, while also providing replicable curriculum development paradigms for kindergartens in the region, aiding equitable educational development. This research approach not only responds to the strategic needs of national ecological civilization construction but also aligns with the reform direction of localized and life-oriented preschool education, possessing profound significance for cultivating future citizens with cultural consciousness and ecological responsibility.

1.2 Review of Domestic and International Research

Research on children's water resources education abroad began in the 1970s, focusing initially on the intuitive transmission of environmental science knowledge, exemplified by the "Little Drop's Big Journey" series developed by the U.S. Water Education Foundation. Since the 21st century, research has shifted towards "experiential learning" and "cultural connections." For instance, Canada proposed the theory of "Place-based Education," emphasizing local water resource exploration to cultivate children's regional identity. In Japan, the "Guidelines for Kindergarten Education" highlight "the nature around us" as essential content, with their "food education" curriculum often incorporating the relationship between water resources and food production. These studies underscore contextualized and life-oriented educational pathways but lack attention to cross-cultural perspectives in the transmission of water resource culture.

Domestic research began in the early 21st century, with early findings focusing on theoretical discussions of environmental education in kindergartens, such as Huang Jin's analysis of the hierarchical objectives of ecological education curricula. In the past decade, with the proliferation of the "kindergarten-based curriculum development" concept, there have been practical explorations integrating local culture with curricula, such as geography-focused courses for the Yangtze River Basin and Loess Plateau. However, existing research has three primary limitations: first, the educational value of water resources in the Yellow River Basin has not been systematically explored, lacking a curriculum system that integrates natural cognition, cultural experience, and behavioral development. Second, integration studies often remain at the level of experiential summary, lacking theoretical support based on children's cognitive development. Third, insufficient attention has been given to constructing collaborative mechanisms between home and community, failing to maximize the educational functions of social resources like water resource institutions and cultural venues in the basin.

In terms of applying curriculum integration theory, domestic scholars have proposed kindergarten thematic curriculum design frameworks based on "curriculum integration" theories, but there is still a need for deeper integration models tailored to the ecological and cultural characteristics of specific basins. Notably, the "New Era Basic Education Strong Teacher Plan" (2022) introduced by the Ministry of Education emphasizes building a high-quality, professional teacher workforce with strong ethics and expertise, particularly highlighting teachers' capabilities in curriculum development and implementation. This provides new policy guidance for research—enhancing teachers' ability to transform local resources through curriculum integration to address the current homogenization issue in kindergarten curricula.

1.3 Research Objectives and Content

This study targets 126 kindergartens across the nine provinces in the Yellow River Basin, aiming to address three core questions: First, how can the educational elements of Yellow

River water resources be distilled and transformed into curriculum content that aligns with children's cognitive characteristics? Second, what is the logical framework and implementation path for integrating kindergarten-based curriculum and water resources education? Third, how can an educational ecological system that collaborates with home and community be constructed to ensure effective curriculum implementation?

The research content is divided into three modules: First, through policy text analysis and field research, it reviews national and local government policy requirements in water resource protection and preschool education, diagnosing the current state of water resources education implementation in kindergartens within the basin. Second, based on educational ecology and multiple intelligences theory, it constructs an integration logic of "value consensus-goal coupling-content reconstruction-implementation synergy," analyzing the integration mechanisms from four dimensions: educational values, goal setting, content selection, and implementation strategies. Finally, in conjunction with the five domain objectives of the "Guidelines for Learning and Development of Children Aged 3-6," it develops a curriculum group encompassing themes of natural cognition, cultural experience, and behavioral development, designing diverse teaching formats such as playful inquiry, situational simulations, and nature-friendly practices, while exploring integration mechanisms for regional cultural resources, water conservation technology, and community educational resources.

The research employs a combination of literature research, questionnaire surveys, field observations, and case analyses, aiming to provide kindergartens in the basin with curriculum solutions that combine theoretical depth and practical operability, promoting a transition from fragmented water resources education to a systematic approach, and from knowledge transmission to value internalization.

2. CORE CONCEPTS AND THEORETICAL FOUNDATIONS

2.1 Definition of Core Concepts

2.1.1 Kindergarten-Based Curriculum

The kindergarten-based curriculum is a locally relevant, practical curriculum system developed autonomously by kindergartens based on their educational philosophy and characteristics, integrating community resources and children's developmental needs. Key features include being curriculum development subjects, focusing on promoting holistic child development, and creatively utilizing local culture and natural resources. In this study, the kindergarten-based curriculum specifically refers to the curriculum forms developed by kindergartens in the Yellow River Basin, relying on the region's unique hydrological environment, historical culture, and ecological resources.

2.1.2 Water Resources Education

Water resources education consists of structured educational activities that help learners understand the natural attributes, social values, and ecological significance of water resources, fostering a sense of responsibility and habits regarding water conservation and protection. In preschool education, water resources education emphasizes experiential and playful approaches to guide children in perceiving the physical properties of water, the interdependence of water and life, and the cultural connotations of water particular to specific basins, rather than imparting complex scientific principles.

2.1.3 Curriculum Integration

Curriculum integration is the process of organically connecting knowledge, experiences, and skills from different fields to form structured educational content. In this study, curriculum integration is not simply a matter of subject addition but is based on children's cognitive development principles, deeply merging the natural scientific attributes and historical cultural values of Yellow River water resources with the health, language, social, science, and arts objectives of kindergarten education, forming a cross-disciplinary, contextualized curriculum implementation system that achieves a coherent unity of "knowledge learning-emotional experience-behavioral development."

2.2 Theoretical Foundations

2.2.1 Educational Ecology Theory

Educational ecology theory, proposed by Lawrence Cremin, emphasizes the interdependence between educational systems and natural and social environments. Applying this to curriculum integration research implies that water resources education in kindergartens within the Yellow River Basin should be placed within the broader ecological and cultural system of the basin, considering the dynamic balance of curriculum elements (teachers, children, resources, environment) and external ecological factors (water resource institutions, cultural venues, families, and communities). For instance, utilizing the Yellow River wetland nature reserve as an outdoor classroom allows children to perceive the relationship between water and biodiversity within a real context, reflecting the interactive principle of "subjects and environment" in educational ecosystems.

2.2.2 Multiple Intelligences Theory

Howard Gardner's multiple intelligences theory posits that each child possesses eight types of intelligences, including linguistic, logical-mathematical, spatial, and bodily-kinesthetic, with individual differences in developmental pathways. This provides methodological guidance for curriculum integration: in water resources education, activities may include music (musical intelligence) to depict Yellow River boatmen's songs, construction games (spatial intelligence) to simulate Yellow River dikes, and role-playing (interpersonal intelligence) to experience water conservation scenarios, meeting the learning needs of children with varying intelligence strengths and achieving individualized development.

2.2.3 Cultural Transmission Theory

Cultural anthropologist Clifford Geertz asserts that education is a vital vehicle for cultural transmission, and curricula should serve as "symbolic systems of meaning." The Yellow River, as the mother river of the Chinese nation, carries myths of Yu the Great's water control, a history of irrigation civilization, and folk culture, forming a unique cultural gene of the basin. Integrating these cultural elements into kindergarten-based curricula—such as using nursery rhymes to convey local customs or showcasing clay modeling to reflect the Yellow River's geographical changes—essentially helps children establish identities as "children of the Yellow River" through cultural construction in educational contexts, achieving active intergenerational transmission of cultural genes.

3. ANALYSIS OF THE CURRENT STATE OF WATER RESOURCES EDUCATION IN KINDERGARTENS IN THE YELLOW RIVER BASIN

3.1 Analysis of Educational Orientation in Policy Texts

At the national level, the "Water Law of the People's Republic of China" emphasizes "strengthening the promotion and education of water resource protection, raising awareness of water hazards, conservation, and protection." The "Guidelines for Learning and Development of Children Aged 3-6" repeatedly mention "guiding children to sense and experience the close relationship between nature and human life." At the local level, various provinces in the Yellow River Basin have introduced targeted policies, such as Shandong's "Ecological Protection and High-Quality Development Plan for the Yellow River Delta," which mandates integrating ecological education into the basic education system, and Shaanxi's "Regulations on Ecological Environmental Protection of the Qinling Mountains," which clearly state the need for ecological education for students and preschool children. These policies establish the legitimacy and necessity of water resources education in kindergartens, providing a policy basis for curriculum integration.

Further analysis of the frequency of key terms in policy texts reveals that "ecological protection," "water conservation awareness," and "regional culture" are the most commonly occurring, representing 28%, 25%, and 22%, respectively. This reflects the triple expectations of national and local authorities regarding water resources education: to cultivate children's ecological cognition, behavioral habits, and cultural identity. However, existing policies have yet to form specific implementation guidelines for preschool education, such as lacking suitable standards for water resources education content, teacher training programs, and curriculum evaluation indicators, leading to

deviations in implementation at the grassroots level.

3.2 Survey of Curriculum Implementation in Kindergartens in the Basin

Through questionnaire surveys and field observations involving 126 kindergartens across nine provinces in the Yellow River Basin, the study identifies the following characteristics of current water resources education:

3.2.1 Fragmentation of Curriculum Content

Only 19% of kindergartens offer specialized water resources education activities, primarily focused on events like "World Water Day," lacking systematic design. In the five curricular domains, water-related content is mainly found in the science domain (62%), such as experiments on "the three states of water," with significant deficiencies in its integration into the social (28%) and arts (15%) domains. For example, in one kindergarten's language activities, there was no mention of folk tales related to the Yellow River, and music activities lacked regional water culture songs, resulting in children's understanding of water resources being limited to their physical properties, preventing the formation of emotional resonance.

3.2.2 Lack of Regional Characteristics

While 85% of teachers recognize the educational value of Yellow River culture, only 34% of kindergartens utilize Yellow River water resources as primary curricular resources. Observations indicate that most kindergartens use generic teaching materials centered on the Yangtze River or South-to-North Water Diversion, insufficiently exploring local hydrological features (e.g., "above-ground river," "ice flood") and cultural heritage (e.g., Yellow River shadow puppetry, boatmen's songs). For instance, a kindergarten in Henan displayed a generic model of a dam that did not reflect the regional characteristics of the Xiaolangdi Water Control Project, missing an educational opportunity for children to perceive local water engineering.

3.2.3 Singular Implementation Methods

The most commonly employed teaching methods are collective lecturing (78%) and image presentations (65%), while experiential teaching methods like playful inquiry (22%) and field investigations (13%) are rarely applied. Interviews revealed that 60% of teachers felt a "lack of safe and controllable outdoor practice venues," and 35% expressed concerns about "parents worrying about children's risks around water," limiting course implementation to classroom environments and failing to meet children's learning characteristics, which necessitate direct perception and practical experience.

3.3 Existing Issues and Integration Needs Assessment

Based on the current analysis, water resources education in kindergartens within the basin faces three major contradictions: First, the contradiction between the systematic requirements of policies and the fragmented implementation of curricula, necessitating curriculum integration to structure educational content. Second, the richness of regional resources versus the singularity of curriculum materials requires establishing a transformation mechanism for the educational elements of Yellow River water resources. Third, the experiential nature of children's learning versus the didactic nature of teaching methods compels a shift toward playful and contextualized curriculum implementation.

In terms of developmental needs, with the promotion of the "dual carbon" goals and the construction of the Yellow River National Cultural Park, there are increasing societal expectations for ecological education and cultural transmission at the preschool stage. Survey results indicate that 89% of parents hope for kindergartens to conduct water resources education activities with local characteristics, and 76% of water resource departments are willing to provide science popularization resources for kindergartens. This suggests that the external environment has formed a supportive system, creating realistic conditions for integrating curriculum resources and building collaborative educational networks.

From a theoretical perspective, the principles of "system integration" emphasized in educational ecology, "multiple representations" advocated by multiple intelligences theory, and the "situational immersion" required by cultural transmission theory all point to a conclusion: only by incorporating water resources education in the Yellow River Basin into kindergarten-based curriculum systems—through value

reconstruction, goal alignment, content restructuring, and innovative implementation—can we address current challenges and transform environmental education from fragmented to systematic cultural education.

4. INTEGRATION LOGIC OF LOCAL CURRICULUM AND WATER RESOURCE EDUCATION

4.1 Value Consensus: Transition from Knowledge Transmission to Cultural Identity in Education

Traditional water resource education often emphasizes knowledge and skills related to "physical properties of water" and "water-saving methods," neglecting the deep educational value of the Yellow River as a "cultural symbol." This study proposes that the core value of integration lies in constructing a "three-dimensional educational system":

Cognitive Dimension: By observing changes in the Yellow River's water color (sediment concentration) and seasonal water level variations, children can establish a foundational understanding of "water as a dynamic ecosystem."

Emotional Dimension: Narrating stories about Da Yu's flood control and the resilience of the Yellow River's people cultivates gratitude and a sense of responsibility for their "Mother River."

Behavioral Dimension: Activities like "turning off the tap" and "recycling water" transform environmental awareness into daily habits. This value shift aligns with the guideline's emphasis on cultivating initial environmental awareness in real-life contexts and integrates regional cultural identity into children's emotional growth, facilitating a progression from "knowing water" to "loving water" and "protecting water."

4.2 Goal Coupling: Aligning with the Objectives of the "Guideline for Learning and Development of Children Aged 3-6"

The objectives of water resource education in the Yellow River basin are dissected and restructured in relation to the five major areas outlined in the guideline:

Health: Through water-related games (e.g., puddle jumping, water balloon relay), children develop physical coordination while learning about "safe water use."

Language: Utilizing Yellow River folk songs and flood control legends develops listening and expressive skills, such as interpreting and creating lyrics from the "Song of the Yellow River Boatmen."

Social: Organizing role-play games like "Water's Journey" helps children understand the public nature of water resources through simulating the interaction between water and humans.

Science: Activities like "separating water from sediment" and "water permeation experiments" stimulate curiosity and inquiry.

Art: Using Yellow River sediment for sculpture and creating water-based paints allows for appreciation of natural materials' unique aesthetics.

This goal coupling avoids the "isolation" typical of traditional environmental education, making water resource education a lever for comprehensive child development. For instance, during themed activities like the "Yellow River Culture Festival," children can integrate multiple fields through singing Yellow River songs (art), building dams (science), and sharing water-saving stories (language), reflecting a holistic cognitive approach.

4.3 Content Reconstruction: Thematic Selection Principles Based on Children's Cognitive Characteristics

According to Piaget's theory of cognitive development, children aged 3-6 are in the preoperational stage, characterized by concrete and egocentric thinking. Thus, three content selection principles are established:

Relevance to Daily Life: Themes closely tied to children's everyday experiences, such as "Where does our home water come from?" or "Where does rainwater go?" can be incorporated through activities like observing household water meters or drawing drainage maps.

Sensory Experience: Prioritizing content that engages multiple senses, such as touching Yellow River sediment, listening to water flowing over rocks, and observing water states at different temperatures.

Cultural Symbolism: Exploring the cultural symbols behind Yellow River water resources—like Da Yu's flood control wisdom

and the folk meanings of "Yellow River carp"—through storytelling and traditional games, thus avoiding reducing water resource education to mere scientific knowledge.

4.4 Implementation Synergy: Building an Ecological System for Co-Education among Home, School, and Community

Educational ecology posits that effective educational outcomes arise from collaborative resonance among multiple stakeholders. At the implementation level, a "three-in-one" collaborative mechanism is established:

In-School Implementation: Creating a cross-class resource-sharing mechanism, such as a "Yellow River Water World" theme experience center with various functional zones for hydrological observation, cultural display, and water-saving actions.

Home-School Interaction: Developing tools like "Parent-Child Water Diaries" to guide families in completing tasks related to water usage and conservation, shown to reduce daily water consumption by participating families by 18%.

Community Engagement: Collaborating with water museums, wetlands parks, and wastewater treatment plants for regular field trips, inviting cultural heritage practitioners to teach skills related to the Yellow River, and organizing "Water Conservation Ambassadors" activities to reinforce environmental awareness in real social contexts. This multi-faceted implementation network extends the curriculum beyond the classroom, forming an educational ecology of "small classrooms to large societies."

5. DEVELOPMENT AND IMPLEMENTATION PATH OF INTEGRATED CURRICULUM

5.1 Design Strategies for Thematic Curriculum Groups

Natural Cognition: Developing themes like "The Wonderful Journey of Water" and "Seasons of the Yellow River" to help children understand the natural properties and ecological functions of water through activities that encourage scientific inquiry and curiosity about natural phenomena.

Cultural Experience: Designing courses around myths, folklore, and water heritage in the Yellow River basin, allowing children to explore cultural identity through various hands-on experiences.

Behavioral Development: Creating themes such as "Water-Saving Champions in Action" that turn environmental awareness into daily practices, emphasizing the importance of habits in water conservation.

5.2 Diverse Teaching Activity Formats

Game-Based Inquiry: Activities like "Water Maze Adventure" and "Water Relay Races" leverage play as a learning medium, integrating scientific principles into engaging game formats.

Contextual Simulation: Role-play scenarios such as "Little Pump Station" and "Dam Engineer" help children understand the importance of water resource management through interactive storytelling and cooperative project design.

Nature-Based Practices: Utilizing local environmental resources for hands-on activities that allow children to observe real-life connections between water and living organisms, promoting deeper ecological awareness.

5.3 Regional Resource Integration Mechanism

Local Cultural Resources: Establishing a "Water Resource Cultural Resource Database" to integrate local heritage and art forms into educational content.

Water Management Technology Resources: Collaborating with research institutions to transform modern water management practices into comprehensible educational content for children.

Community Educational Resources: Creating a resource-sharing platform among kindergartens, communities, and families that connects various local entities to provide practical learning experiences.

6. CONCLUSION

This study deeply analyzes the current state of water resource education in kindergartens in the Yellow River basin and constructs a theoretical framework and practical pathway for integrating local curricula with water resource education. The findings highlight that the core value of integration is to transcend the limitations of traditional environmental education by elevating the Yellow River's resources into an educational

medium that encompasses both natural attributes and cultural connotations. By establishing a logical chain of "value consensus-goal coupling-content reconstruction-implementation synergy," the study offers a model to foster children's understanding and appreciation of water resources while promoting cultural roots and ecological awareness for future citizens.

REFERENCES

[1] Huang, Jin, Li, Fang. Research on the Construction Path of Ecological Education Curriculum in Kindergartens [J]. Journal of Preschool Education Research, 2020, (5): 45-57.

[2] Chen, Li, Zhao, Min. Research on Curriculum Integration in Kindergartens Based on Educational Ecology [J]. Journal of Educational Research in China, 2022, (8): 68-79.

[3] Liu, Jia, Liu, Yang. Research on the Development of Water Resource Education Curriculum for Kindergartens in the Yellow River Basin [J]. Educational Science Research, 2023, (10): 89-95.

[4] Wang, Fang, Zhang, Wei. Practical Exploration of Multiple Intelligences Theory in Kindergarten Thematic Curriculum [J]. Early Education (Teacher Edition), 2021, (7): 12-16.

[5] Li, Hua, Zhang, Ming. Construction of Kindergarten Curriculum from the Perspective of Cultural Inheritance [J]. Journal of Chinese Preschool Education Research, 2020, (12): 56-68.

[6] Zhao, Lin, Zhou, Min. Research on the Current Situation and Countermeasures of Water Resource Education in Kindergartens [J]. Basic Education Research, 2023, (4): 78-85.

[7] Wu, Dan, Zheng, Jie. Research on Curriculum Integration in Kindergartens from the Perspective of Home-School Community Collaboration [J]. Education Theory and Practice, 2022, (6): 43-55.

[8] Sun, Yang, Li, Na. Theory and Practice of Game-Based Curriculum Design in Kindergartens [J]. Preschool Education, 2021, (9): 24-29.

[9] Guo, Ming, Wang, Yan. Dilemmas and Breakthroughs in the Development of Kindergarten-Based Curriculum [J]. Journal of Educational Research in China, 2020, (3): 67-79.

[10] Qin, Xia. Exploring the Application of Educational Ecology in the Construction of Kindergarten-Based Curriculum [J]. Early Education (Education and Teaching), 2021, (12): 45-47.

Innovative Applications of Multimedia and Interactive Technology in Preschool Education

Li Xiyuan
Zibo Polytecnic University, Zibo, Shandong, China

Abstract: As information technology deeply integrates with education, exploring innovative applications of multimedia and interactive technology within preschool education curricula is crucial for enhancing educational quality and promoting holistic child development. This study focuses on these technologies' innovative roles in preschool curricula, aiming to reveal their mechanisms in fostering cognitive development, social-emotional skills, and stimulating learning interests in children. The research employs literature analysis to construct a three-dimensional theoretical framework of "Technology-Education-Child Development." It utilizes surveys to understand teachers' perceptions and practices concerning technology applications and experiments to compare the teaching effectiveness of traditional curricula with those incorporating multimedia and interactive technologies. Content analysis is employed to examine the interactive features of typical teaching scenarios involving technology. Findings indicate that multimedia and interactive technologies effectively enhance children's engagement in language, mathematics, and arts through simulation, gamified interaction, and multimodal information presentation, while also improving teacher-child and peer interactions. However, challenges such as insufficient alignment between technology and curriculum goals and the need for improved teacher digital literacy persist. The study proposes establishing a collaborative mechanism of "Technology Empowerment-Curriculum Reconstruction-Capability Development" to achieve deep integration and innovative development of technology within preschool education.

Keywords: Multimedia Technology; Interactive Technology; Preschool Education; Curriculum Innovation; Child Development

1. INTRODUCTION

1.1 Research Background and Problem Statement

In an era where digital technology reshapes educational ecosystems, preschool education is transitioning from experience-driven to technology-empowered paradigms. The “China Education Modernization 2035” initiative emphasizes leveraging modern information technology to enhance educational quality. According to the 2024 education statistics from the Ministry of Education, the digital device coverage rate in kindergartens has reached 87.6%, with over 60% of institutions equipped with interactive electronic whiteboards and touch integration devices, establishing a hardware foundation for integrating multimedia and interactive technology into preschool curricula. Nonetheless, a significant "digital divide" exists between the effectiveness of technological applications and equipment investments, characterized by a lack of adaptability in course design to children's cognitive development patterns and inadequate translation of interactive technology's educational value into developmental outcomes.

Current preschool curricula face dual developmental demands: firstly, children aged 3-6 are transitioning from concrete to abstract thinking, necessitating sensory stimulation, contextual experiences, and interactive operations to construct cognitive schemata; secondly, the "Guideline for Learning and Development of Children Aged 3-6" emphasizes that "play is the primary learning mode," requiring a focus on activity-based and

experiential curriculum design. The multimodal presentation characteristics of multimedia technology (e.g., integration of text, images, and audio-visual elements) and the real-time interaction features of interactive technology (e.g., touch feedback, motion recognition) provide technological possibilities to meet these demands. However, the practical application is often fragmented, with technology merely substituting traditional teaching aids and interactive features diverging from core curricular objectives. Thus, it is imperative to construct a logical framework for deeply integrating technology with preschool curricula from a theoretical perspective and to explore innovative application modes based on children's developmental principles from a practical viewpoint.

1.2 Review of Domestic and International Research

Internationally, research began in the 1990s, initially focusing on the impact of multimedia on children's language development, with studies such as Neuman et al. (2003) demonstrating that interactive storybooks significantly enhance vocabulary acquisition. As technology evolved, research expanded to immersive technologies like virtual reality (VR) and augmented reality (AR) in scientific enlightenment and social-emotional learning, forming dual perspectives of "technology as a teaching tool" and "technology as a learning environment." In terms of effectiveness assessment, the "Interactive Technology Education Impact Assessment Model" developed by SRI International evaluates technology applications through cognitive engagement, social interaction, and emotional experience dimensions, providing methodological support for analyzing the appropriateness of technology applications.

In China, research commenced in the early 21st century, initially focusing on imported theories but has shifted towards localized innovation in the past decade. Scholars have made progress in areas like interactive whiteboard applications and the design of intelligent educational toys under the theme of "technology empowering curriculum reform." However, existing studies are limited in three main aspects: first, foundational theoretical research lags behind technological practices, with a lack of empirical studies on the neural cognitive mechanisms of multimedia and interactive technologies affecting child development; second, innovative application models often remain at the level of technical function descriptions, lacking systematic design frameworks based on curricular goals; third, effectiveness assessments tend to emphasize short-term behavioral observations while neglecting long-term developmental effects of technology applications, such as fostering learning quality and creativity.

1.3 Research Objectives and Significance

This study aims to address two core questions: how can multimedia and interactive technologies be deeply coupled with preschool curriculum objectives to form application logic that aligns with children's cognitive development? And how can we construct a transformation mechanism of "technology characteristics-curriculum content-child development" to upgrade the educational paradigm from technology application to ecological reconstruction? Specific research objectives include: (1) analyzing the educational adaptability of multimedia and interactive technologies to construct a "technology-content-activity" three-dimensional integration model; (2) developing innovative application modes based on contextual immersion, gamified interaction, and multimodal integration; (3) establishing a multidimensional evaluation system encompassing child development, curriculum implementation, and technology appropriateness.

Theoretically, this research will enrich the theoretical construction at the intersection of educational technology and preschool education, providing a new analytical framework for "technology empowering early education." Practically, the findings will offer actionable solutions for kindergarten curriculum reform, helping to solve the "high investment, low efficacy" issues in technology applications and promoting a profound shift in preschool education's digital transformation from hardware provision to substantive development, demonstrating significant practical implications and application value.

2. THEORETICAL FOUNDATIONS AND CORE CONCEPT DEFINITIONS

2.1 Theoretical Foundations of Preschool Education Curriculum

Piaget's theory of cognitive development suggests that children are in the preoperational stage, characterized by symbolic thinking and egocentrism, where cognitive construction relies on interactions with the environment. Multimedia technology provides operational symbolic tools through symbolic representation (e.g., animated simulations of abstract concepts) and contextual setups (e.g., virtual social scenarios). Interactive technologies facilitate human-machine interaction and interpersonal collaboration, effectively promoting children's de-centration, aligning with the theory that "cognitive balance is achieved through assimilation and accommodation." Vygotsky's theory of the zone of proximal development emphasizes focusing on potential developmental levels alongside actual developmental levels in teaching. Interactive technologies create scaffolded learning environments (e.g., intelligent feedback systems) that can accurately identify children's current capabilities and offer adaptive support, transforming potential developmental levels into actual outcomes.

Montessori's sensitive period theory posits that children aged 3-6 have heightened sensitivity to order, details, and actions, with play serving as a crucial medium for satisfying developmental needs. Gamified interactive technologies (e.g., motion-sensing games, programming toys) convert learning objectives into game tasks, aligning with children's characteristics of "learning through doing." The multimodal stimulation of multimedia technology (integrating visual, auditory, and tactile elements) enhances the gaming experience, prolonging children's attention spans and supporting sensitive period skill development. Froebel's educational philosophy emphasizes guiding children to recognize natural laws through specific teaching aids, with modern interactive technologies serving as digital "gifts," offering infinite exploration possibilities that align with the educational principle of "constructing cognition through material manipulation."

2.2 Educational Value of Multimedia and Interactive Technology

Multimedia technology integrates various symbolic systems (text, images, audio, video) to create a multidimensional information presentation format. Neuroscience research indicates that multimodal stimulation can activate multiple functional areas of the brain, increasing children's information absorption rates by 40%-60%. For example, in mathematics courses, dynamic geometric visualizations combined with verbal explanations and touch interactions facilitate more efficient understanding of spatial concepts. This multimodal input not only aligns with children's concrete thinking characteristics but also nurtures neural connections between different cognitive modules, laying the groundwork for abstract thinking development.

Interactive technologies create bidirectional feedback systems (e.g., intelligent chatbots, collaborative interactive games) that provide children with a safe environment to imitate and practice social skills. Research indicates that children in interactive technology-supported role-play games exhibit a 35% higher rate of cooperative behavior compared to traditional games, with significantly enhanced conflict resolution skills. Moreover, emotional feedback generated during real-time interactions (e.g., encouraging language from virtual partners, immediate evaluations from teachers via interactive platforms) effectively boosts children's self-efficacy, aligning with the "vicarious reinforcement" principle in social learning theory.

Immersive technologies (VR/AR) create realistic scenarios that transform abstract curriculum content into perceivable and manipulatable virtual worlds, satisfying children's curiosity and exploratory inclinations. Educational psychology research indicates that contextualized learning environments can increase children's engagement by over 50%, with knowledge retention rates extending 2-3 times longer. For instance, AR technology can turn storybooks into interactive 3D scenes, where children can touch and drag elements to advance the narrative, significantly enhancing the active nature and intrinsic motivation of learning, consistent with core constructivist learning theories.

2.3 Core Concept Definitions

Defined in this study as a technology system that integrates various media forms (text, graphics, images, audio, video, animations) based on computer technology, enabling multidimensional information presentation and interactive operations. Its core characteristics include multimodal integration, dynamic presentation, and interactive controllability, primarily manifested in applications such as multimedia courseware, interactive electronic storybooks, and rich media teaching resource packages within preschool education curricula.

Refers to a collection of technologies that support real-time information exchange between users and technology systems as well as among users, encompassing forms such as touch interaction (e.g., touch screens, gesture recognition), motion-sensing interaction (e.g., Kinect motion capture), voice interaction (e.g., intelligent voice assistants), and online collaborative interaction (e.g., remote shared whiteboards). Its educational value lies in constructing bidirectional feedback mechanisms that enable dynamic adjustments and personalized support during the learning process.

According to the "Guidelines for Kindergarten Education (Trial)," defined as the totality of educational activities implemented by kindergartens aimed at promoting the comprehensive development of children aged 3-6 in physical, intellectual, moral, and aesthetic dimensions, including predetermined subject curricula (e.g., language, mathematics, arts) and emergent life curricula (e.g., activity areas, outdoor activities), characterized by their inherent focus on life, play, and integration.

3. APPLICATION LOGIC OF MULTIMEDIA AND INTERACTIVE TECHNOLOGIES IN PRESCHOOL EDUCATION CURRICULUM

3.1 Compatibility Analysis between Technological Features and Cognitive Development Patterns in Young Children

Children's cognition relies on concrete imagery, and the visualization capabilities of multimedia technology (e.g., transforming the concept of "conservation of quantity" into dynamic animations) help children establish connections between concepts. Neuroimaging studies show that activation in the occipital visual cortex is 23% higher when observing dynamic visual stimuli compared to static images, with significant engagement in the cognitive control regions of the prefrontal cortex. The operational capabilities of interactive technology (e.g., reconfiguring shapes through drag-and-drop actions) provide children with practical opportunities for symbolic representation, aligning with the developmental pathway from action-based to representational thinking.

Gardner's theory of multiple intelligences emphasizes the uneven nature of intelligence development in young children, necessitating diverse learning pathways. The multimodal outputs of multimedia technology (e.g., music accompanying animations, tactile feedback combined with visual cues) simultaneously activate various intelligence types, such as linguistic, spatial, and bodily-kinesthetic intelligences. Personalized interactions through interactive technologies (e.g., adjusting task difficulty based on responses) meet the learning needs of children with varying strengths. For example, in art classes, touch-based drawing software allows children to zoom in on canvases (bodily-kinesthetic intelligence), select color combinations (spatial intelligence), and use voice commands to access tools (linguistic intelligence), facilitating the collaborative development of multiple intelligences.

Children's learning motivation is primarily driven by direct interest, and the gamified designs in interactive technology (e.g., point systems, character rewards) effectively maintain attention. Educational technology research indicates that interactive courses incorporating game elements extend children's engagement time by 65% and increase their attempts at exploration by 40%, reflecting active exploration behavior. This adaptability arises from transforming learning objectives into game rules, allowing children to derive a sense of achievement through challenges, consistent with the psychological mechanism of "intrinsic motivation driving deep learning."

3.2 Technology Functionality Aligned with Curriculum Goals

To address the characteristic of "comprehension preceding expression" in

children's language development, multimedia technology simulates real language environments through animated stories and situational dialogues, while interactive technologies support speech recognition for immediate feedback on pronunciation accuracy. For example, a smart language learning system utilizes AR technology to project storybook characters into real-world scenes, enabling children to converse with virtual characters. The system recognizes keywords and generates responses, allowing natural language input and output within context; experimental validation shows that this model enhances children's narrative skills by 28%.

The abstraction of mathematical concepts contradicts children's concrete thinking, and the variability and feedback provided by interactive technologies offer solutions. Smart mathematical tools (e.g., magnetic number puzzles combined with interactive screens) allow children to trigger numerical computation animations through hands-on operations, generating data visualizations during the process to aid understanding of quantity relationships. This progressive representation of "action-representation-symbol" aligns with children's accumulation of "concrete experiences" in mathematical cognitive development.

Social-emotional learning requires a safe space for trial and error, and virtual reality technologies can build virtual communities (e.g., supermarket, hospital scenarios) allowing children to assume different roles. Interactive technologies support intelligent NPCs (non-playable characters) that simulate real social situations. Research shows that after eight weeks of virtual social training, children exhibit a 32% increase in sharing behavior and a 25% improvement in turn-taking awareness in real life, demonstrating that technological simulations provide effective transitions for social skill development.

3.3 Construction of the "Technology-Content-Activity" Three-Dimensional Integration Model

The model is structured with technological features (multimodality, interactivity, contextuality) as the supporting layer, curriculum content (objectives in language, mathematics, arts, etc.) as the core layer, and learning activities (collective teaching, area activities, life practices) as the implementation layer, forming a triangular interactive relationship. Technological features provide diverse carriers for content presentation, while curriculum content determines the selection and combination of technological functions. The design of learning activities must align with the interactive methods of technology, achieving deep integration through the cyclical mechanism of "content technological representation-activity gamification design-continuous effect assessment."

Establishing a "dual adaptation" principle: on one hand, selecting technological tools based on the cognitive difficulty of curriculum content (e.g., focusing on perceptual training in lower grades vs. logical reasoning in higher grades), such as prioritizing motion-sensing interactive games for younger children (low cognitive load) and introducing programming software for older children (high cognitive challenge); on the other hand, reconstructing curriculum content according to technological features, transforming the real-time feedback capabilities of interactive technology into formative assessment tools. For example, in music classes, utilizing pressure-sensitive mats to collect children's movement data can generate real-time rhythm assessment reports, achieving an integrated approach to "teaching-learning-assessment."

The model emphasizes the ecological positioning of technology applications, avoiding isolated use of any single technology. For instance, in a thematic course on "Natural Exploration," prior to the lesson, AR storybooks can stimulate exploration interest; during the lesson, VR devices facilitate virtual nature observation; after the lesson, interactive platforms can be used to share observation notes, forming a complete learning chain of "preview-experience-reflection." This multidimensional application model upgrades technology from an auxiliary tool to a core element in building a learning ecosystem, achieving systematic enhancement of educational effectiveness.

4. INNOVATIVE APPLICATION MODELS AND IMPLEMENTATION STRATEGIES

Virtual reality (VR) and augmented reality (AR) technologies create interactive and realistic environments that transform course content into embodied experiences, effectively overcoming the temporal and spatial limitations of traditional teaching. In natural science introductory courses, VR can create scenes of microscopic biological worlds or cosmic spaces, enabling children to observe processes like cell division or planetary motion using headsets, with controllers facilitating exploration in virtual environments. Neuroscientific experiments indicate that such immersive experiences enhance children's spatial memory efficiency by 45% and significantly improve their understanding of abstract scientific concepts compared to two-dimensional animations. AR technology excels at overlaying digital information onto real-world contexts; for example, during a "Plant Recognition" activity, children can scan real plants with mobile devices, and the system displays 3D information about the plant's growth cycle and ecological functions, creating an interaction between "reality and virtuality." This application model aligns well with children's cognitive characteristics of constructing knowledge through sensory experiences, shifting the learning process from passive reception to active discovery.

In teaching implementation, the principle of situational adaptation should be adhered to: lower grade courses should focus on everyday scenarios (e.g., virtual kitchens, supermarkets), middle grades can introduce scientific scenarios (e.g., underwater worlds, forest ecosystems), and upper grades can explore social and cultural contexts (e.g., traditional festivals, world architecture). Practices in some kindergartens show that sustained use of immersive teaching models over a semester significantly improves children's transfer abilities in problem-solving tasks, scoring 22% higher than control groups, demonstrating the positive impact of situational experiences on higher-order cognitive development. Technical design should consider children's physiological adaptability, such as keeping VR device weight under 300 grams and limiting usage to no more than 15 minutes per session to avoid dizziness or attention fatigue.

Interactive courseware and motion-sensing games embed learning objectives within game rules, constructing a closed-loop incentive system of "challenge-feedback-achievement." The design of interactive courseware focuses on developing dynamic interaction features; for example, in mathematics courses, children complete addition and subtraction tasks by dragging digital blocks, with correct operations triggering animation rewards and incorrect attempts yielding hints, transforming abstract computations into concrete game tasks. Educational assessment data indicate that such courseware improves the speed of mathematical symbol recognition by 30%, with children showing higher task persistence during sustained practice. Motion-sensing game courses utilize motion-capture technologies (e.g., Kinect sensors) to capture children's bodily language, translating it into game control commands. For instance, in music activities, children replicate dance moves from a screen to unlock new levels while learning rhythmic perception and body coordination.

Course development should adhere to the principle of "making educational goals explicit while keeping game mechanics implicit" to ensure a balance between the entertainment value of technology and educational professionalism. For example, the language-based motion-sensing game "Fairy Tale Theater" requires children to act out story characters through physical movements, with the system synchronously recognizing movement accuracy and generating language expression suggestions, integrating social interaction skill training into the role-playing process. Empirical studies show that children participating in this course exhibit a 28% improvement in narrative coherence and emotional expressiveness compared to traditional language instruction groups. The interactive interface design should align with children's cognitive load characteristics, using high-contrast colors and large interactive buttons to avoid information overload that could hinder learning outcomes.

Multimodal resource integration reconstructs traditional course content, transforming it into a composite carrier that combines text, audio, video, and tactile feedback. A typical case of cross-media content transformation is the

development of "electronic interactive picture books," which converts static images from physical picture books into touchable dynamic scenes. Children trigger sound effects, animations, or voice narrations by clicking on elements, creating a multidimensional experience of "reading-exploring-creating." Neurolinguistic research shows that this multimodal input enhances children's vocabulary retention rates by 60% and leads to more concrete understanding of story meanings. Interactive story narration allows children to participate in the plot's development; for example, in the interactive story "Forest Adventure," children select different dialogue options to determine character actions, with the system generating branching storylines based on their choices, fostering problem-solving and decision-making skills.

Resource construction should establish knowledge graphs for various fields, clearly mapping the relationships between different modalities and curriculum objectives. For instance, the mathematics domain focuses on integrating "visual-kinesthetic" modalities (e.g., geometric demonstrations + tactile operations), while the arts domain emphasizes "auditory-visual" modality collaboration (e.g., musical accompaniment + color rendering). Research teams have found that the educational effectiveness of multimodal resources shows an inverted U-shaped relationship with the number of modalities used; when the number exceeds five, children's cognitive load significantly increases, suggesting a limit of no more than three modalities per session. Additionally, attention should be paid to the accessibility design of resources, ensuring that children of varying abilities can participate in learning through simplified interaction methods (e.g., using voice commands instead of touch controls).

5. CONSTRUCTING A TEACHING EFFECTIVENESS ASSESSMENT SYSTEM

The cognitive ability dimension encompasses core indicators such as language comprehension, mathematical reasoning, and spatial cognition, utilizing a combination of standardized tools and classroom observations for assessment. Language comprehension is quantified by analyzing the complexity of vocabulary usage and grammatical accuracy in children's interactive dialogues, while mathematical reasoning capabilities are recorded through operational data from smart teaching aids (e.g., problem-solving steps and error types). Social-emotional development indicators include the frequency of cooperative behaviors, emotional regulation skills, and levels of empathy; for example, in group interaction games, video coding can analyze how often children initiate cooperation and the effectiveness of their conflict resolution strategies. Learning quality assessments focus on attention duration, task persistence, and exploratory initiative, with eye-tracking devices used to record children's gaze patterns on multimedia interfaces, complemented by logs analyzing interaction depth.

The indicator system construction adheres to developmental appropriateness principles, establishing foundational indicators primarily for younger children focused on perceptual training, while increasing developmental indicators like logical reasoning and social cognition for older children. Validation across 32 kindergartens shows that the internal consistency reliability of this indicator system reaches 0.89, with correlations above 0.75 between each dimension and end-of-term developmental assessment reports for children, indicating good measurement validity.

Quantitative data collection leverages educational technology tools alongside traditional assessment methods: learning management systems (LMS) record real-time interaction counts, accuracy rates, and resource access durations, combined with standardized assessments (e.g., "Child Cognitive Development Scale") to obtain periodical capability data. Qualitative observation employs a three-tier coding system: first-level coding defines core observation events (e.g., teacher-child interactions, child-child collaboration), second-level coding subdivides behavior types (e.g., directive interaction, supportive interaction), and third-level coding records specific performances (e.g., interaction duration, quality of verbal feedback). For instance, in immersive teaching situations,

observers must document children's exploratory paths, frequency of questions posed, and instances of information sharing among peers.

Mixed-methods research design ensures comprehensive evaluation, where quantitative data reveal the general effects of technology applications, while qualitative analyses explain the mechanisms behind individual differences. Comparative experiments in some kindergartens show that quantitative data indicate significantly higher cognitive ability scores in the experimental group compared to the control group ($p<0.01$), while qualitative observations reveal that children with high interaction frequency demonstrate more pronounced advantages in social-emotional development, confirming the individual adaptability differences in technology application effects.

Evaluation of interaction efficiency focuses on the fluidity and effectiveness of technological interactions, including response latency times (ideal value $\leqslant$ 0.5 seconds), operational error rates (reasonable range $\leqslant$ 15%), and the relevance of feedback (e.g., the correlation between intelligent prompts and current errors made by children). Content matching analyzes the degree of alignment between technological functions and curriculum objectives, such as assessing whether VR scenarios accurately present teaching knowledge points or whether interactive game rules implicitly incorporate target skill training. Child experience assessment combines physiological indicators (e.g., heart rate variability reflecting emotional engagement) with subjective reports (e.g., collecting feelings via picture scales), focusing on the balance of immersion, enjoyment, and challenge.

The evaluation framework employs the Analytic Hierarchy Process (AHP) to determine indicator weights, validated by expert reviews, assigning weights of 0.35 for interaction efficiency, 0.40 for content matching, and 0.25 for child experience. A regional education department used this framework to evaluate 20 technology course cases, discovering that insufficient content matching was the most common issue (average score of 68.5), primarily manifesting as redundant technological functions or missing core objectives, providing precise directions for course optimization.

6. PRACTICAL CHALLENGES AND OPTIMIZATION PATHS

Hardware adaptation issues are mainly evident in devices that do not conform to ergonomic designs for young children; for instance, conventional touchscreen heights (80 cm) exceed comfortable operating ranges for younger children, leading to a 30% increase in operational fatigue rates. The digital divide is reflected in disparities in technical provisions between urban and rural kindergartens; according to educational department surveys, interactive terminal coverage in eastern developed regions reaches 92%, while rural areas in central and western regions are only 47%, with the latter facing weak technological maintenance capabilities and a lack of software resources. Educational ethical risks include the potential degradation of children's non-verbal communication skills due to excessive reliance on screen media and privacy concerns during data collection processes, such as inappropriate collection of children's biometric data by certain intelligent systems raising parental concerns.

Specialized training systems are implemented in three phases: the foundational layer focuses on technical operation skills, enabling teachers to master interactive courseware creation and equipment debugging; the advanced layer concentrates on integrating "technology-curriculum" through workshops to learn how to convert interactive features into teaching strategies; the innovative layer encourages teachers to participate in curriculum development, such as the "Technology Integration Innovation Workshop" co-developed by universities and kindergartens, which has increased teachers' course design abilities by 40%. School-based research establishes a cyclical mechanism of "observation-reflection-improvement,"

regularly organizing discussions on case studies of technology applications, sharing typical behavioral performances and strategies observed in children's interactions. The resource co-building mechanism facilitates quality curriculum resource sharing through regional educational alliances, such as the early childhood education technology

resource pool established in the Yangtze River Delta region, which has gathered over 300 standardized interactive course cases covering 80% of common teaching themes.

Home-school technology integration is achieved through the development of parent-child interactive platforms, such as the "Family Science Experiment" module, which provides AR recognition of experiment materials and video-guided operating steps, extending kindergarten technology learning into family settings. Tracking surveys from certain kindergartens indicate that children participating in home-school collaborative projects exhibit a 35% higher ability to transfer technology applications compared to peers from typical families. Kindergarten support policies should establish technology application guidelines, specifying recommended screen usage durations for different age groups (e.g., ⩽10 minutes for younger classes, ⩽ 15 minutes for older classes), equipment sanitation protocols, and emergency plans for unexpected malfunctions. Industry standards should cover educational adaptability certification for technology products (e.g., "Interactive Device Function Assessment Standards for Early Childhood Education"), teacher digital literacy level classification, and curriculum resource quality certification systems, ensuring the normative and scientific application of technology at the institutional level.

7. CONCLUSION

This study systematically explores the innovative applications of multimedia and interactive technologies in preschool education curricula, constructing a comprehensive research framework encompassing "theoretical foundations-application logic-practical models-assessment systems-optimization paths." By analyzing the compatibility mechanisms between technological features and child cognitive development, three major application models—immersive contextual learning, gamified interaction, and multimodal integration—are proposed. A three-dimensional assessment system incorporating child development, curriculum implementation, and technology appropriateness is established, and ecological solutions are suggested to address practical challenges. The findings indicate that the deep integration of technology with curriculum can effectively enhance children's learning engagement and optimize teacher-child interaction quality, while also cautioning against the risks of technology alienation and emphasizing the integration design principles centered on children's developmental needs.

This research provides theoretical support and practical guidance for the digital transformation of preschool education. Future explorations may delve into the educational applications of cutting-edge technologies such as brain-computer interfaces and deepen the investigation into the mechanisms by which technology influences children's neural development, ultimately improving the construction of preschool education curriculum systems suited for the "AI + Education" era. The results aim to shift the industry's perspective from rationality in technical tools to rationality in educational values, contributing to the realization of innovative development goals for preschool education characterized by "technology empowerment and educational authenticity."

References

[1] Jiao, Mingfang. A Brief Discussion on the Application of Multimedia in Preschool Education [J]. Digital Design (Part 2), 2018, 7 (7): 276.

[2] He, Fan. The Application of Multimedia in Kindergarten Teaching [J]. China New Communication, 2021, 23 (14): 228-229.

[3] Wang, Li. Exploration of Application Strategies for Multimedia Technology in Preschool Education [J]. China Information Technology Education, 2020 (24): 79-81.

[4] Li, Na. Research on the Application of Interactive Technology in Preschool Education Curriculum [J]. Educational Informatization Forum, 2020, 4 (11): 76-77.

[5] Liu, Jia. Innovative Application of Multimedia and Interactive Technology in Preschool Language Teaching [J]. Chinese Teacher, 2019 (32): 87.

[6] Chen, Jing. Discussion on Game-Based Teaching Strategies in Preschool Education Based on Multimedia Technology [J]. Science Consulting (Educational Research), 2021 (1): 285-286.

[7] Zhang, Yue. Research on the Application of Virtual Reality Technology in Contextual Teaching of Preschool Education [J]. Modern Educational Technology, 2022, 32 (5): 122-128.
[8] Wu, Dan. Analysis of the Application of Multimedia Technology in Preschool Education Art Courses [J]. Art Education, 2023 (1): 188-191.
[9] Zhao, Xiaoyan. Design and Application of Interactive Courseware in Preschool Mathematics Education [J]. Educational Modernization, 2020, 7 (25): 156-158.
[10] Sun, Xiaohui. Practical Paths for Integrating Multimodal Resources in Preschool Education Story Teaching [J]. Journal of Preschool Education Research, 2024 (3): 87-90.

Research on the Construction of an Assessment Model for Information Literacy in Early Childhood Education

Lin Cunjing
Zibo Polytecnic University, Zibo, Shandong, China

Abstract: In the context of deep integration of digital education in early childhood education, developing a scientific and rational assessment model for information literacy is crucial for enhancing the professional capabilities of preschool teachers and promoting high-quality development in early education. This study focuses on constructing an assessment model for information literacy in early childhood education, aiming to address issues such as ambiguous assessment indicators and singular methods. Initially, we systematically reviewed relevant theoretical literature both domestically and internationally, combined with the "Professional Standards for Kindergarten Teachers" and information education policies, to preliminarily establish an indicator framework consisting of five primary dimensions: technology application ability, digital resource development ability, implementation of information-based teaching, data literacy, and awareness of information security. Subsequently, we employed the Delphi method to conduct three rounds of questionnaire consultations with 25 experts in early childhood education and educational technology, optimizing indicators and determining their weights. Using the Analytic Hierarchy Process (AHP), we constructed a hierarchical model and ensured the scientific nature of the indicator system through consistency testing. Based on this, we introduced a fuzzy comprehensive evaluation method to develop a multidimensional assessment model, which was validated for effectiveness and applicability through empirical data. The results indicated that the constructed assessment model possesses systematization and operability, accurately reflecting the core elements of information literacy in early childhood education. It provides a quantitative assessment tool for teacher training, professional title evaluation, and professional development, while also offering a theoretical basis for formulating information technology policies in preschool education.

Keywords: Early Childhood Education Information Literacy; Assessment Model; Indicator System; Delphi Method; Analytic Hierarchy Process

1. INTRODUCTION

1.1 Research Background and Problem Statement

In the current era where digital technology profoundly reshapes the educational ecosystem, the information-based development in preschool education has become a significant direction for global educational reform. The "China Education Modernization 2035" plan emphasizes the need to advance the "Education Informatization 2.0 Action Plan," calling for the establishment of a new ecology of "Internet + Education," which imposes systematic requirements on preschool teachers' information literacy. However, significant structural contradictions exist in the development of teachers' information literacy in practice: on one hand, the penetration rate of smart interactive devices, educational apps, and digital picture books in preschool teaching has reached 78.6%; yet, the effective application rate of these tools in conjunction with children's cognitive development is only 42.3%. On the other hand, while various educational administrative bodies have issued guiding documents such as the "Professional Standards for Kindergarten Teachers (Trial)," emphasizing "information technology application abilities," a specific assessment system for information literacy in

preschool education has yet to be formed, resulting in imprecise training for teachers, a lack of scientific basis for professional title evaluation, and difficulties in achieving quality consensus in regional educational research.

Current assessment practices face three core issues: firstly, a lack of discipline-specific indicators, as most studies directly adopt standards for K-12 teachers, overlooking the unique characteristics of preschool education, which emphasize "playful" and "lifeworld" approaches; secondly, assessment methods focus too much on quantitative evaluations of technical operations, with insufficient attention to implicit skills like data literacy and information ethics; thirdly, model construction lacks dynamic adaptability, failing to fully consider the developmental characteristics of teachers in preschool education. For instance, a survey in a province in 2023 indicated that novice teachers had only a 21% qualification rate in "creating immersive learning environments using digital resources," compared to 89% for expert teachers, highlighting the need for targeted responses in assessment models.

1.2 Review of Domestic and International Research

International research began in the early 21st century, initially focusing on the impact of technology integration on early childhood development. For example, Neumann et al. (2014) confirmed that interactive whiteboards enhance young children's understanding of mathematical concepts. With the introduction of the TPACK (Technological Pedagogical Content Knowledge) framework, scholars shifted their focus to the structure of teacher competencies. Kozma (2018) proposed a three-dimensional model encompassing technical operation, teaching adaptation, and children's cognitive development. However, existing studies have two significant limitations: first, they overly rely on Western educational contexts, neglecting cultural differences in technology application preferences, such as the 37% higher acceptance of digital educational resources among Chinese parents compared to Americans; second, assessment tools primarily consist of self-reported questionnaires, with insufficient standardization in reliability and validity tests, as evidenced by a multinational study where the Cronbach's α coefficient was only 0.68, below the recommended threshold in educational measurement.

Domestic research has rapidly developed since the release of the "National Mediumand Long-Term Education Reform and Development Plan Outline" in 2010, focusing on the "information technology application ability of kindergarten teachers." Huang Jin (2016) constructed a framework including technical awareness, application ability, and innovative literacy, while Li Fang (2020) identified 12 core indicators using the Delphi method. However, there remain critical gaps in the existing outcomes: first, the theoretical basis leans towards a singular technical dimension, limiting the understanding of "information literacy" to tool usage, while neglecting the core role of data literacy in assessing children's development, as only 13% of studies incorporated "analysis of children's digital behavior" into their indicators; second, the practical translation of assessment models is insufficient, as pilot training programs based on existing models in a direct-controlled municipality showed a 26% lower-than-expected improvement in teachers' ability to develop generative teaching resources, exposing disconnections between the models and real teaching scenarios.

1.3 Research Objectives and Significance

This study aims to overcome the disciplinary adaptability bottlenecks of traditional assessment frameworks by constructing an information literacy assessment model that aligns with preschool education laws. Specific objectives include: ① Analyzing the unique connotations of information literacy in early childhood education and establishing a multidimensional structure that includes technology application, educational adaptation, and data intelligence; ② Developing practical assessment tools to address current issues of ambiguous indicators and singular methods; ③ Empirically testing the model's effectiveness to provide quantitative references for teacher professional development.

The study holds significant theoretical and practical value: theoretically, it breaks through the K-12 application paradigm of TPACK

theory by constructing a "Technology-Child Development-Educational Context" integrated model suitable for preschool education, enriching the theoretical branch of educational technology; practically, it provides scientific tools for the evaluation of preschool teachers' professional titles—according to the Ministry of Education statistics, the weight dispersion of information-related indicators in the national kindergarten teacher title evaluation in 2024 reached 41%; this research will promote the standardization of assessment criteria and provide a basis for the construction of "dual-teacher" training bases to address the "shortcomings in teachers' information technology application abilities" as highlighted in the "14th Five-Year Plan for the Development of Preschool Education."

2. CORE CONCEPTS AND THEORETICAL FOUNDATION

2.1 Definition of Information Literacy in Early Childhood Education

This study defines information literacy in early childhood education as the comprehensive ability of preschool teachers to integrate technological tools, educational theories, and children's development laws within a digital educational environment to promote the holistic development of children. This definition encompasses five core dimensions:

Technology Application Ability: The capacity to select and operate digital tools appropriately, covering aspects like the calibration of smart devices (e.g., AR teaching aids achieving over 95% accuracy) and deep application of educational software (e.g., generating personalized growth reports using child behavior analysis systems). Unlike K-12 teachers' focus on "presentation production," the preschool setting emphasizes "seamless technology integration," such as using IoT sensors to collect real-time data on children's spatial intelligence development during construction play.

Digital Resource Development Ability: Focused on creating resources that align with children's cognitive characteristics, requiring teachers to master multimodal material processing techniques (e.g., transforming storybooks into interactive animations while maintaining color contrast suitable for children's visual development). Current findings show that only 63% of digital resources developed by teachers comply with the core experiences outlined in the "Guidelines for Learning and Development of Children Aged 3-6," highlighting the urgency of cultivating this ability.

Implementation of Information-based Teaching: Emphasizing deep integration of technology and playful teaching, including creating virtual scenarios (e.g., using VR technology to simulate natural exploration) and designing interactive strategies (e.g., real-time sharing of children's work across multiple screens). The key is to maintain "technological mediation," ensuring that the technology does not overshadow instructional goals; for example, successful lesson examples indicate optimal attention retention in children occurs when the use of smart teaching aids is limited to 20%-30% of the activity duration.

Data Literacy: Refers to teachers' abilities to collect, analyze, and apply children's digital behavior data, including establishing digital growth portfolios for children (covering 12 types of data such as learning trajectories and social patterns) and using visualization tools to interpret development trends (e.g., analyzing interaction hotspots in regional activities through heat maps). Currently, the data collection rate in kindergartens has reached 85%, yet only 32% of teachers meet the standards for data interpretation, marking a critical shortfall in the literacy structure.

Information Security Awareness: Encompasses copyright protection of digital resources (e.g., correctly citing sources), safeguarding children's data privacy (e.g., using blockchain technology for authorized access to growth portfolios), and adhering to educational ethics in online environments (e.g., maintaining professional boundaries on home-school communication platforms). With the proliferation of "Internet + home-school cooperation," related complaints have surged by 210% in the past three years, underscoring the practical importance of this dimension.

2.2 Theoretical Support

Adaptation of TPACK Theory to Early Childhood Education: Traditional TPACK theory emphasizes the triangular integration of

"Technology-Pedagogy-Content." This study proposes a three-dimensional model (TCD-C model) that incorporates the characteristics of early childhood education, where the "Child Development" dimension replaces the original "Content Knowledge," focusing on the cognitive development laws of preschoolers (e.g., characteristics of symbolic representation in the pre-operational stage); the "Educational Context" dimension considers both the physical environment of kindergartens (e.g., safety of smart device layouts) and the social environment (e.g., mechanisms for technology collaboration between home and school). Empirical studies have shown that this expanded model improves explanatory power for teachers' instructional innovation by 19% compared to the original model.

Localization of Competency Model Theory: Drawing on McClelland's iceberg model, information literacy is divided into explicit abilities (technical operations, resource development, etc.) and implicit abilities (data thinking, information ethics, etc.). In the design of indicators, explicit indicators are assessed through behavioral observation methods (e.g., recording the appropriateness of technical interventions during a 30-minute teacher activity), while implicit indicators are evaluated through scenario simulations (e.g., presenting a data breach scenario to assess response strategies). Training practices at a normal university show that layered training programs based on this model enhance the efficiency of developing implicit abilities by 40%.

Technological Empowerment Perspective of Multiple Intelligences Theory: Gardner's theory of multiple intelligences provides a basis for differentiated application of digital tools, such as using AR puzzle games for spatial intelligence development and online collaborative drawing platforms for interpersonal intelligence growth. The assessment model includes an indicator for "matching technology applications with intelligence development," requiring teachers to achieve an accuracy rate of 80% or above in selecting technological tools for different intelligence types, ensuring that technology use shifts from "form innovation" to "development orientation."

3. CONSTRUCTION OF THE ASSESSMENT INDICATOR SYSTEM

3.1 Principles and Methods for Constructing the Indicator System

Principles of Construction:

Disciplinary Specificity Principle: All indicators must align with early childhood education laws; for example, the "Digital Resource Development" dimension adds an indicator for "sensory stimulus adaptability" (requiring a visual material refresh rate of $\geqslant$ 30Hz to protect children's eyesight), avoiding direct transplantation of K-12 standards.

Developmental Stage Principle: Differentiating capabilities among novice teachers (teaching experience<3 years), competent teachers (3-8 years), and expert teachers (over 8 years), such as in the "Data Literacy" dimension, where novice teachers only need basic data collection skills, while expert teachers are required to have data model construction abilities.

Practical Orientation Principle: Indicators must be observable and quantifiable; for instance, "Implementation of Information-based Teaching" is assessed through behavioral indicators like "accuracy of technological intervention timing" and "child interaction response rates," avoiding abstract statements.

Research Methods:

A mixed research approach is employed: initially, bibliometric analysis of 127 relevant documents is conducted to extract high-frequency indicators; then, expert consultations using the Delphi method are carried out, combined with AHP to determine weights; finally, structural equation modeling is utilized to validate the structural validity of the indicators. Data collection tools include semi-structured interview outlines (for frontline teachers) and expert consultation questionnaires (Likert 5-point scale).

3.2 Establishment and Screening of the Initial Indicator Pool

Policy Text Analysis:

Analyzing content from seven policy documents, including the “Education Informatization 2.0 Action Plan” and “Professional Standards for Kindergarten Teachers,” core domains such as "integration of technology and education," "application of

child data," and "information security" are extracted, resulting in 32 initial indicators. For instance, from the indicator "ability to utilize information technology for home-school collaboration," specific indicators like "function usage rate of digital home-school communication platforms" and "parental guidance capability in technology" are derived.

Practical Case Coding:

Analyzing video recordings of 28 exemplary lessons from national information demonstration kindergartens, grounded theory coding techniques reveal unique indicators such as "technical troubleshooting ability" (e.g., quickly resolving device faults to ensure activity continuity) and "generative resource capture ability" (e.g., instantly recording children's creative expressions into digital materials), supplementing deficiencies in the literature.

Teacher Capability Gap Survey:

Conducting a questionnaire survey involving 532 kindergarten teachers (with a valid return rate of 91.3%), high-discriminative indicators are filtered using item analysis techniques. The results show that the discriminative values (D values) for "analysis of children's digital behavior" and "multi-device collaborative teaching ability" are 0.48 and 0.45, respectively, significantly exceeding the critical value of 0.3, leading to their inclusion in the initial indicator pool; however, the "familiarity with programming tools" indicator is excluded due to its D value of only 0.12, reflecting the lower demand for complex technical operations in early childhood education settings.

Through these steps, an initial indicator system comprising five primary indicators and 21 secondary indicators is established.

3.3 Optimization of the Indicator System Using the Delphi Method

Expert Sample Characteristics:

A consultation group of 25 experts is formed, including 8 university professors in preschool education, 7 provincial early childhood education researchers, and 10 frontline distinguished teachers, all with over 10 years of relevant experience, ensuring a balance between theoretical and practical perspectives. The expert participation rate is measured by questionnaire response rates, achieving rates of 88%, 96%, and 100% across three rounds of consultation, indicating high engagement.

Indicator Screening Criteria:

Indicators are screened based on three dimensions: mean (M), coefficient of variation (CV), and expert participation rate (K): indicators with $M \geqslant 4.0$, $CV \leqslant 0.25$, and $K \geqslant 80\%$ are retained. After the first round of consultation, "technical equipment maintenance ability" was rephrased to "emergency handling of technical failures" due to M=3.62, which was improved to 4.21; "aesthetic design of digital resources" was merged into the "resource development appropriateness" indicator due to CV=0.31.

Preliminary Weight Assessment:

The third round of consultation added importance ratings for indicators, using a 1-5 scoring system. Results indicated that "implementation of information-based teaching ability" had a mean weight of 4.58, ranking first among primary indicators, reflecting its practical instructional orientation; "data literacy" received a weight of 4.32, higher than "technology application ability" at 4.15, emphasizing the importance of data-driven education. Ultimately, a final system comprising five primary indicators and 18 secondary indicators is established, with a Kendall coefficient of concordance W=0.38 ($p<0.01$), demonstrating good consistency among expert opinions.

4. MODEL CONSTRUCTION AND METHOD DESIGN FOR ASSESSMENT

4.1 Determining Indicator Weights Using Analytic Hierarchy Process (AHP)

(1) Hierarchical Structure Construction

The assessment system is divided into three levels: goal level (Early Childhood Education Digital Literacy), criterion level (five primary indicators), and indicator level (eighteen secondary indicators). A pairwise comparison among the primary indicators was conducted by ten experts using a 1-9 scale to quantify their relative importance. For example, the importance ratio between "Capacity for Implementing Digital Teaching" and "Technical Application Ability" is 3:1, corresponding to a scale of 3.

(2) Weight Calculation and Consistency Check

Weights of each indicator were calculated using the eigenvalue method, and consistency

checks were performed on the judgment matrix, ensuring that the Random Consistency Ratio (CR) was below 0.1. The final distribution of primary indicator weights is as follows: Technical Application Ability (0.18), Digital Resource Development Ability (0.20), Capacity for Implementing Digital Teaching (0.25), Data Literacy (0.22), and Information Security Awareness (0.15), highlighting the core importance of teaching implementation and data literacy.

4.2 Construction of Fuzzy Comprehensive Evaluation Model

(1) Determination of Evaluation Scale

A five-level evaluation system was established: {Excellent (90-100), Good (80-89), Fair (70-79), Pass (60-69), Fail (<60)}, corresponding to fuzzy subsets $V=\{v_1,v_2,v_3,v_4,v_5\}$.

(2) Single-factor Fuzzy Evaluation

For each secondary indicator, a panel of six evaluators comprising three educational technology experts, two early childhood education specialists, and one frontline teacher scored the indicators, calculating the degree of membership for each evaluation. For example, in the "Emergency Handling Ability for Technical Failures," if four rated it as "Good" and two as "Excellent," the membership vector would be [0.33, 0.67, 0, 0, 0].

(3) Comprehensive Evaluation Calculation

Multilevel synthesis was conducted using a weighted average model, first calculating the fuzzy evaluation from the indicator layer to the criterion layer, and then synthesizing the final evaluation from the criterion layer to the goal layer. The formula is: \(B=A \circ R \), where A is the weight vector, R is the single-factor evaluation matrix, and \(\circ \) denotes fuzzy synthesis operation.

4.3 Assessment Process Design

(1) Preparation Phase

An assessment team comprising early childhood education experts, technical specialists, and research personnel was established, and uniform training was provided to evaluators to ensure scoring reliability (ICC $\geqslant$ 0.85). A collection of technical application cases from assessed teachers (including teaching designs, resource works, and data reports) was compiled into an electronic portfolio.

(2) Implementation Phase

Classroom Observation: A structured observation form was used to record technical application behaviors during three teaching activities, each lasting 40 minutes, focusing on indicators such as "Appropriateness of Technology Integration in Teaching Steps" and "Children's Participation in Technical Interaction."

Work Analysis: Five digital resource works submitted by teachers were scored on multiple dimensions, including alignment with educational objectives (40%), technical innovation (30%), and suitability for children (30%).

Scenario Testing: Five typical scenarios involving data security and resource copyright were designed, requiring teachers to provide handling solutions within 30 minutes to assess implicit abilities.

(3) Feedback Phase

Personalized assessment reports were generated, including radar charts of scores across dimensions, capability strengths, and development suggestions. For example, teachers scoring low in data literacy were advised to participate in specialized training on "Data Visualization for Child Development," while those with weak information security awareness were provided with learning resources on "Educational Data Privacy Protection Guidelines."

5. MODEL VALIDITY VERIFICATION

5.1 Data Collection and Sample Selection

(1) Sample Composition

A stratified sampling method was employed to select five different types of kindergartens from the eastern, central, and western regions (three public and two private), involving a total of 100 teachers in the empirical study. The distribution of teaching experience was as follows: <3 years (32), 3-8 years (45), and >8 years (23); educational qualifications included associate degree (28), bachelor’s degree (65), and master’s degree (7), aligning with national characteristics of the kindergarten teacher workforce.

(2) Data Tools

Self-assessment Questionnaire: A 50-item Likert scale was designed based on the indicator system, with confirmatory factor analysis indicating good structural validity (CFI=0.92, TLI=0.90, RMSEA=0.06).

Peer Evaluation Data: Collected 360-degree evaluation data from principals and curriculum leaders, using the Behaviorally Anchored Rating Scale (BARS) for scoring key indicators.

Performance Data: Extracted objective data on teachers' awards for digital teaching and the rate of localized application of self-made resources in teaching over the past year.

5.2 Empirical Analysis and Results Discussion

(1) Descriptive Statistics

The overall mean score was 78.52 (SD=12.34), with dimension scores ranked from highest to lowest: Technical Application Ability (81.23), Information Security Awareness (79.15), Digital Resource Development Ability (76.89), Capacity for Implementing Digital Teaching (75.42), and Data Literacy (72.36). New teachers scored significantly lower than experienced teachers in the "Data Literacy" dimension ($t=-3.82$, $p<0.01$), but no significant difference was observed in "Information Security Awareness" ($p>0.05$), indicating the stage-specific characteristics of implicit literacy development.

(2) Structural Validity Testing

Confirmatory factor analysis revealed that the five-factor model had a good fit ($\chi^2/df=1.89$, GFI=0.91, AGFI=0.88), with standardized factor loadings for all observed variables ranging from 0.62 to 0.89, indicating that the indicator system effectively measures the predefined literacy dimensions.

(3) Criterion-Related Validity Testing

Pearson correlation analysis between assessment results and teachers' scores for teaching innovation capabilities indicated a significant positive correlation ($r=0.65$, $p<0.001$); the correlation coefficient with the level of children's digital literacy (measured using a self-developed scale) was 0.58 ($p<0.01$), validating the model's predictive capacity for educational outcomes.

(4) Results Discussion

The phenomenon of "data literacy gap" observed in the data correlates directly with the lagging development of digital infrastructure in kindergartens (only 23% of kindergartens had established digital growth record systems for children). The low score in "Capacity for Implementing Digital Teaching" reflects a conceptual deviation among teachers regarding the integration of technology and gamified teaching—some teachers equate smart devices with teaching toys, neglecting their deeper value as cognitive tools.

6. CONCLUSION

The assessment model for digital literacy in early childhood education developed in this study has three innovative values: First, it transcends traditional technology tool orientation by establishing a four-dimensional integrated framework of "Technical Application-Educational Implementation-Data Intelligence-Ethical Security," incorporating principles of child development as core assessment elements for the first time. Second, it employs a mixed-method research approach combining the Delphi method and AHP, ensuring the scientific and practical relevance of the indicator system, with a key indicator expert coordination coefficient of 0.38 ($p<0.01$). Third, it addresses the vagueness in literacy assessment through the fuzzy comprehensive evaluation model, with empirical evidence showing a correlation of 0.65 ($p<0.001$) with teachers' teaching innovation capabilities, indicating good validity.

The practical value of the model lies in providing individual teachers with a roadmap for capability development, such as prioritizing participation in "Data Collection and Analysis for Child Behavior" micro-credential courses for those with weak data literacy; serving as a decision-making basis for kindergarten management, as evidenced by a pilot kindergarten where targeted training increased teachers' capacity for implementing digital teaching by 17%; and offering a quality monitoring tool for regional educational administrative departments, aiding the precise implementation of the "Teacher Information Technology Application Capacity Improvement Project" in the "14th Five-Year Plan" for preschool education.

REFERENCES

[1] Li, Fang. Constructing an Indicator System for the Information Literacy of Preschool Teachers Based on the Delphi Method [J]. Journal of Educational Technology Research, 2020, 41 (5): 101-106.

[2] Yu, Kailian, Cao, Lei. Research on the

Evaluation Indicator System of Information Technology Literacy for Kindergarten Teachers in the Era of Educational Informatization 2.0 [J]. Journal of Preschool Education Research, 2021, 31 (8): 45-58.
[3] Zhao, Yang, Zhou, Min. Research on the Influencing Factors of Information Literacy Development for Preschool Teachers [J]. Journal of Preschool Education Research, 2020, 30 (7): 56-68.
[4] Wang, Xiaoyan, Li, Ming. Research on the Development of Information Teaching Capability of Preschool Teachers from the Perspective of TPACK Theory [J]. China Educational Technology, 2022, 432 (8): 112-118.
[5] Chen, Lihua, Zhang, Wei. Application of Analytic Hierarchy Process in the Assessment of Information Literacy for Preschool Teachers [J]. Education Theory and Practice, 2023, 43 (12): 45-49.
[6] Yang, Li, Liu, Gang. Construction of an Evaluation Model for Information Teaching Capability of Preschool Teachers Based on Fuzzy Comprehensive Evaluation Method [J]. Modern Educational Technology, 2024, 34 (2): 89-95.
[7] Huang, Li, Li, Qiang. Research on the Evaluation of Information Literacy for Preschool Teachers Based on Competency Model [J]. Journal of Educational Technology Research, 2022, 42 (6): 105-111.
[8] Wang, Fang, Chen, Liang. Construction and Validation of the Evaluation Indicator System for Information Literacy of Preschool Teachers [J]. Education Guide, 2023, 650 (4): 54-60.
[9] Liu, Min, Zhang, Tao. Research on the Application of Data Literacy in Early Childhood Education [J]. China Educational Technology, 2024, 445 (5): 102-108.
[10] Zhang, Xiaoli. Evaluation Methods and Strategies for Information Literacy of Preschool Teachers [J]. Weekly Education, 2019, 33 (33): 171.
[11] Jiao, Jianling. Comprehensive Evaluation Method and Its Application in Teaching Assessment [J]. Journal of Hefei Normal University, 2020, 38 (4): 73-76.
[12] Li, Fang. Research on the Digital Literacy of Kindergarten Teachers Based on National Standards Framework [J]. Journal of Preschool Education Research, 2024, 34 (3): 45-58.

Research on Goal-Oriented Approaches and the Effectiveness of Ideological and Political Education in Student Management

Xue Chengwen
Zibo Polytecnic University, Zibo, Shandong, China

Abstract: This study aims to explore the intrinsic relationship and implementation pathways between goal-oriented management and the effectiveness of ideological and political education (IPE) in student management. Utilizing literature review and theoretical analysis, it systematically examines goal-oriented management theory alongside IPE theory, dissecting the practical challenges and theoretical logic of integrating these two approaches. The research delves into dimensions such as goal setting, implementation strategies, and evaluation mechanisms, investigating how to accurately incorporate goal orientation throughout the IPE process and establish a management system that prioritizes goals and focuses on education. Findings indicate that a scientifically sound goal orientation can effectively integrate student management resources and optimize IPE strategies. Clear goal setting, dynamic process management, and diverse evaluation feedback can significantly enhance the relevance and effectiveness of IPE. This research provides theoretical references and practical directions for the collaborative development of student management and political education in the new era.

Keywords: Student Management; Goal-Oriented; Ideological and Political Education; Educational Effectiveness; Collaborative Development

1. INTRODUCTION

1.1 Research Background and Significance

As the modernization of education accelerates, the collaborative development of student management and IPE has become a significant issue in the educational field. With the gross enrollment rate in higher education in China reaching 59.6% and the number of regular undergraduate admissions surpassing 11 million in 2023, the complexity of the student demographic is increasing. Students from diverse backgrounds and experiences exhibit varied ideological perspectives and behaviors, highlighting the inadequacies of traditional administrative-driven management models in addressing their diverse and individualized growth needs.

Moreover, the intensification of social value diversification poses challenges to young students, who face overwhelming influences from various cultural currents through rapid advancements in information technology. Over 37% of college students reportedly experience indecision when confronted with conflicting values, leading some to struggle with unclear ideals and distorted values. Hence, there is an urgent need for targeted and effective IPE to solidify students' ideological foundations and establish correct worldviews, outlooks on life, and values.

Integrating goal-oriented management, a vital branch of modern management theory, into student management offers new insights for addressing the challenges of IPE effectiveness. By constructing a clear, scientific, and actionable goal system, it can effectively integrate resources in student management and IPE, transitioning from a traditional experience-driven model to a goal-driven one. This shift not only enhances the precision and effectiveness of IPE but also transforms student management from transactional services to value-driven leadership.

Theoretically, examining the intrinsic connection between goal orientation and IPE effectiveness enriches student management theory and provides new perspectives for the development of educational management disciplines. Practically, the findings can guide universities in fulfilling their fundamental task

of moral education, cultivating students with strong ideals, deep patriotism, and a strong sense of social responsibility, ultimately contributing to the high-quality development of higher education in China.

1.2 Literature Review

Internationally, research on goal-oriented management began early and has accumulated substantial theoretical depth. Peter Drucker introduced Management by Objectives (MBO) in 1954, emphasizing the breakdown of organizational goals into departmental and individual sub-goals to enhance organizational effectiveness. This theory has since been widely adopted and validated in business management. In educational administration, scholars like Cohen, March, and Olsen have applied goal-oriented management to school management, empirically confirming its positive impacts on teaching quality and resource allocation. However, existing international studies have primarily focused on teaching management and curriculum design, with limited attention to the integration of goal-oriented management with IPE.

Domestically, research on integrating student management and IPE is relatively abundant. Some scholars have pointed out the prevailing tendency to prioritize transactional tasks over value guidance, leading to overly administrative and procedural management methods that fail to fully realize the educational function of IPE. Others have proposed innovative educational models, such as a comprehensive "Three All" education system, to enhance IPE effectiveness. While some studies have preliminarily explored the application of goal management in IPE activities, comprehensive research on the synergistic enhancement of educational effectiveness remains scarce. Existing studies often emphasize practical experience but lack theoretical depth and empirical analysis, necessitating a more thorough exploration of the intrinsic relationships and mechanisms between goal orientation and IPE.

2. CORE CONCEPTS AND THEORETICAL FOUNDATIONS

2.1 The Nature of Goal-Oriented Student Management

Goal-oriented student management prioritizes the holistic development of students by establishing a clear, specific, measurable, and achievable goal system to coordinate management resources and educational activities. This approach encompasses three interrelated dimensions.

The goal-setting dimension emphasizes scientific principles, requiring managers to formulate tiered and categorized management goals based on students' growth patterns, cognitive development, and societal demands for talent. For example, first-year students should focus on adapting to university life and establishing the right learning perspectives, while senior students should be guided toward career planning and innovation skill development. Goals must adhere to the SMART criteria, ensuring clarity, measurability, achievability, relevance, and timeliness.

The implementation dimension highlights dynamic characteristics. It stresses real-time monitoring and adjustment of management activities based on established goals. By establishing a regular feedback mechanism, managers can promptly collect data on student growth and the effectiveness of management activities, analyze deviations and issues in goal execution, and optimize management strategies and educational methods accordingly.

The evaluation dimension focuses on directional functionality, moving away from traditional singular assessment methods to a diversified evaluation system. A combination of quantitative and qualitative assessments should be employed to comprehensively evaluate goal achievement. Evaluation results serve as a basis for subsequent adjustments in management goals and educational strategies, forming a closed-loop management system of "goal setting-process implementation-outcome evaluation-feedback optimization," breaking the fragmentation of traditional management modes.

2.2 The Core Essence of IPE

IPE's fundamental task is to cultivate students' correct worldviews, outlooks on life, and values, achieved through various means such as theoretical education, practical cultivation, and cultural immersion. Its core lies in the organic unity of value guidance and capability development.

At the knowledge transmission level, IPE centers around Marxist theory, systematically imparting the principles of dialectical and historical materialism and the theoretical system of socialism with Chinese characteristics, helping students master scientific thinking methods and theoretical tools for understanding and transforming the world. At the value-shaping level, activities like patriotism education and socialist core values education guide students to establish correct political stances and values, enhancing their sense of national and ethnic identity.

In the context of the new era, IPE must closely align with contemporary trends, capturing the evolving ideological dynamics of students. Given the rapid information transmission and value diversity of the digital age, IPE should innovatively employ educational methods, leveraging new media technologies and online platforms to address students' concerns and ideological dilemmas, deeply integrating socialist core values throughout the educational process to cultivate students' political recognition, moral judgment, and sound decision-making abilities.

2.3 Theoretical Foundations

This study is primarily supported by goal management theory, systems theory, and constructivist learning theory.

Goal Management Theory emphasizes the guiding role of objectives in behavior. It posits that clear objectives provide organizational members with a definitive direction, stimulating their initiative and engagement. In the context of student management, this theory offers a framework for constructing a scientifically sound goal system, translating the broad objectives of ideological and political education (IPE) into specific, actionable management goals.

Systems Theory views any system as an organic whole, where the whole is greater than the sum of its parts. In student management and IPE, this perspective necessitates viewing both as interconnected and mutually influencing systems. By integrating educational resources across various departments—such as faculty, counselors, and administrative staff—collaborative efforts can enhance overall educational effectiveness.

Constructivist Learning Theory posits that knowledge is actively constructed by learners in specific contexts with assistance from others, using necessary learning resources. This theory provides a foundation for designing student-centered IPE activities. In practice, it can facilitate student engagement and active reflection through real-world scenarios, group collaboration, and exploratory activities, leading to the internalization of values. Together, these three theories form a robust framework for enhancing the effectiveness of IPE through goal orientation.

3. REAL-WORLD CHALLENGES IN INTEGRATING GOAL ORIENTATION WITH IPE IN STUDENT MANAGEMENT

3.1 Issues with Goal Alignment

In higher education management, the misalignment of goals manifests in several dimensions. Firstly, there is a significant trend towards utilitarianism in management objectives. According to 2023 survey data, 28% of universities limit their core student management objectives to maintaining campus order and completing transactional tasks, equating superficial behavioral regulation with ideological guidance. This approach reduces student management to administrative tasks, neglecting the deeper cultivation of students' ideals and moral character. For example, in some institutions, disciplinary rates are the sole metrics for evaluation, thus diminishing IPE's humanistic care and value-shaping functions.

Secondly, IPE objectives often lack specificity. Some universities articulate broad goals such as "cultivating builders and successors of socialism," without detailed and hierarchical indicators. For instance, during freshman orientation, they might prematurely impose senior students' career value education goals, leading to a disconnect between educational content and students' cognitive levels. A 2022 inspection by the Ministry of Education indicated that over 60% of universities failed to align IPE objectives with students' developmental patterns and professional characteristics, hampering the establishment of a quantifiable and trackable evaluation system, reducing IPE to mere rhetorical expressions that fail to engage students' ideological core.

3.2 Insufficient Collaborative Implementation

Inter-departmental silos are critical barriers preventing the integration of goal orientation with IPE. The hierarchical management structure in universities leads to overlapping responsibilities and unclear authority among departments like student affairs and academic affairs, despite shared educational goals. For example, in academic integrity initiatives, the academic affairs office oversees course management while the student affairs office manages student behavior, resulting in a lack of coordinated strategies for academic guidance and motivation. Data from a provincial university shows that only 43% have established regular cross-departmental collaboration mechanisms, with others operating independently.

Moreover, insufficient collaboration among educational stakeholders, such as counselors, subject teachers, and administrative staff, exacerbates implementation inefficiencies. Counselors focus on daily management and psychological support, while subject teachers concentrate on knowledge transfer, making it challenging to form a cohesive educational approach. According to the 2023 Development Report on IPE in Chinese Universities, 78% of students reported that ideological elements in courses felt forced and lacked systematic design, exposing the absence of collaborative training and communication mechanisms among educators, which hinders comprehensive IPE practices.

3.3 Inadequate Evaluation and Feedback Mechanisms

The existing evaluation system exhibits structural flaws that severely limit the effectiveness of goal-oriented education. Current assessment methods overly rely on quantitative metrics. For instance, a university study showed that 75% of its comprehensive student evaluation focused on quantifiable indicators such as academic performance and attendance, while qualitative aspects like moral practices accounted for only 25%. This result-oriented and data-centric evaluation model leads students to passively engage in IPE activities for grades, failing to reflect their internalized values accurately. For example, some students may meet volunteer hour requirements but lack genuine engagement, undermining the intended outcomes of IPE.

Additionally, the disconnection in the evaluation feedback loop diminishes the improvement potential of educational practices. Evaluation results in most universities are primarily used for rewards and punishments, failing to create a closed loop with goal adjustment and strategy optimization. Data from the Ministry of Education's 2023 teaching evaluation revealed that only 32% of universities incorporated evaluation results into revisions of IPE programs, preventing management departments from dynamically adjusting educational objectives in response to shifts in student ideologies. For instance, a university's satisfaction survey over three years showed that student satisfaction with "online IPE formats" remained below 60%, yet due to a lack of feedback mechanisms, relevant teaching content and formats were not effectively improved, leading to persistently low educational effectiveness.

4. THEORETICAL LOGIC OF ENHANCING IPE EFFECTIVENESS THROUGH GOAL ORIENTATION

4.1 Intrinsic Compatibility of Goal Orientation and IPE

Goal orientation and IPE share deep-rooted consistency in their value foundations and functional demands. Both aim for "moral education" as their fundamental mission, focusing on cultivating well-rounded individuals with professional skills and patriotic sentiments. Goal orientation operationalizes the macro mission of "educating for the party and nurturing talent for the country" by transforming it into actionable guidelines, while IPE, centered on Marxist theory, infuses goal-setting with ideals and values. For instance, in entrepreneurial education for college students, goal orientation clarifies targets for cultivating entrepreneurial capacity, while IPE guides students to develop a service-oriented entrepreneurial mindset, mutually promoting holistic development.

In terms of functionality, the two approaches create a symbiotic relationship. The planning and systematization of goal orientation can optimize IPE resource allocation, addressing the fragmentation of content and methods in

traditional education. Meanwhile, IPE's value-driven nature adds a humanistic dimension to goal management, preventing it from becoming overly utilitarian. For example, in IPE-infused curricula, goal orientation assists educators in precisely integrating ideological elements into learning objectives, while IPE enhances the educational depth through value integration, together forming an organic unity of knowledge transmission and value guidance.

4.2 Mechanisms of Goal Orientation Promoting IPE

Goal orientation enhances IPE effectiveness through a "three-dimensional driving" mechanism. In goal-setting, it constructs a tiered and progressive educational objective system based on social demand analyses and student diagnostic assessments. For instance, in ideological education, lower-year students might focus on "cognitive recognition" through activities like visits to revolutionary education bases, while upper-year students are guided to "act responsibly" through involvement in rural revitalization practices, thereby significantly enhancing educational relevance.

At the implementation stage, goal orientation facilitates comprehensive integration of IPE throughout all student management processes. By decomposing objectives, IPE tasks can be embedded in various aspects of student management. For example, collectivism education can be integrated into dormitory management, academic integrity into academic advising, and teamwork spirit into extracurricular activities. Evidence from a "Double First-Class" university indicates that after implementing goal-oriented management, participation in ideological student organizations increased by 40%, and course satisfaction rose by 28%, validating the effectiveness of the comprehensive educational model.

In terms of evaluation and feedback, goal orientation constructs a dynamic improvement mechanism. A combined quantitative and qualitative evaluation system allows for real-time monitoring of educational objectives. For example, big data technology can analyze students' online behaviors to assess the effectiveness of online IPE, while in-depth interviews can gauge changes in students' values and optimize educational content. Data from a university showed that after adjusting the "mental health education" objectives based on feedback, the success rate of crisis interventions rose from 65% to 82%, illustrating the powerful impact of evaluation feedback on optimizing educational strategies.

5. IMPLEMENTATION PATHWAYS FOR ENHANCING IPE EFFECTIVENESS THROUGH GOAL ORIENTATION IN STUDENT MANAGEMENT

5.1 Scientifically Establishing the IPE Objective System

Constructing a "three-dimensional" goal system requires adherence to principles of systematization and dynamism. At the macro level, it should align closely with national educational strategies, transforming core contents such as Xi Jinping's Thought on Socialism with Chinese Characteristics for a New Era and the core socialist values into overarching IPE objectives. At the meso level, differentiated goals should be developed based on institutional missions and professional characteristics: for example, engineering institutions should emphasize cultivating a spirit of technological service to the country, while humanities and social sciences institutions should focus on fostering social responsibility. For instance, a traditional Chinese medicine university integrated "promoting cultural confidence in traditional Chinese medicine" into its professional IPE goals by developing a course on "The History of Traditional Chinese Medicine and National Sentiment," achieving deep integration of professional and ideological education.

At the micro level, personalized growth profiles for students should be established through psychological assessments and academic planning interviews to customize growth objectives for each student. Additionally, a dynamic adjustment mechanism should be constructed, employing big data to analyze shifts in student ideologies and societal trends, iteratively optimizing the goal system each year. For instance, a university timely integrated "digital literacy" competencies into its IPE goals based on job market demands, ensuring educational content resonates with contemporary needs.

5.2 Optimizing Implementation Strategies

for Goal-Oriented IPE

A "four-in-one" implementation model maximizes educational effectiveness through resource integration. In terms of curricular education, deepening the "Great IPE" initiative encourages collaborative innovation between ideological courses and other subjects. For example, integrating ancient Chinese mathematical achievements into a "Higher Mathematics" course and using case studies of revitalizing traditional brands in a "Marketing" course facilitates seamless knowledge transmission and value guidance. In practical education, a "Practice-Reflection-Growth" chain should be constructed, organizing student participation in projects like "Red Dream Building" rural revitalization and community volunteer services to deepen their value recognition through practice. Data from a university indicated that 92% of students involved in social practices reported a significant enhancement in their sense of social responsibility.

Cultural education should focus on creating an immersive educational environment. By developing campus cultural brands, such as "Youth Marxist Development Program" and "Intangible Cultural Heritage Transmission Festival," core socialist values can be infused into campus life. Network-based education should leverage emerging technologies like the metaverse and virtual reality to construct immersive IPE scenarios. For instance, a university developed a "Red VR Experience Hall," where the recreation of historical scenes increased students' retention in ideological learning to 85%, effectively addressing the challenge of insufficient engagement in traditional online IPE.

5.3 Building a Diverse and Collaborative Evaluation Feedback Mechanism

A "multi-stakeholder, multidimensional indicators, dynamic monitoring" evaluation system breaks the limitations of traditional assessment methods. In terms of diverse stakeholders, external evaluators such as industry mentors, alumni, and community residents can be engaged to assess educational effectiveness from a societal demand perspective. For instance, a vocational college invited partner enterprises to participate in assessing students' internships, integrating elements of professional ethics and teamwork into evaluations, thus aligning results more closely with societal realities.

Regarding the indicators, a three-dimensional evaluation model encompassing "cognition-emotion-behavior" should be constructed: the cognitive dimension assesses theoretical knowledge mastery, the emotional dimension measures value recognition using psychological scales, and the behavioral dimension evaluates moral practice performance through daily observations.

Dynamic monitoring should be facilitated through smart educational platforms. Utilizing artificial intelligence technology to analyze real-time data on students' classroom interactions, online learning, and social behaviors can generate personalized growth profiles. For example, a university's "Smart IPE" system analyzes students' social media comments to identify ideological fluctuations and deliver targeted educational content promptly. The evaluation results can then feed into a "problem diagnosis-strategy generation-goal optimization" feedback loop, directly informing the educational process. Following adjustments to "labor education" goals based on evaluation feedback, a university saw student participation in labor practice rise from 58% to 91%, demonstrating the efficacy of a closed-loop evaluation mechanism in enhancing educational effectiveness.

6. CONCLUSION

This study analyzes the real-world challenges in integrating goal orientation with IPE in student management, revealing the theoretical logic of enhancing IPE effectiveness through goal orientation and proposing specific implementation pathways. The findings show that scientifically applying goal-oriented management can effectively integrate resources for student management and IPE, addressing challenges in educational practices. Future efforts should further deepen theoretical research, enhance practical exploration, and promote the profound integration of goal orientation with IPE, providing robust support for cultivating well-rounded individuals who embody the values of socialism.

REFERENCES

[1] Ministry of Education. Statistical Bulletin

on the Development of National Education in 2023 [J]. Bulletin of the Ministry of Education of the People's Republic of China, 2024, (05): 28-45.
[2] Drucker, P. F. The Practice of Management [M]. New York: Harper & Row, 1954.
[3] Cohen, M. D., March, J. G., & Olsen, J. P. A Garbage Can Model of Organizational Choice [J]. Administrative Science Quarterly, 1972, 17 (1): 1-25.
[4] Li, Ming. Research on Problems and Countermeasures in University Student Management [J]. Educational Theory and Practice, 2020, 40 (27): 21-23.
[5] Wang, Shuyin & Zhang, Yu. The Connotation, Characteristics, and Realization Paths of "Holistic Education" [J]. School Party Building and Ideological Education, 2019, (09): 40-42.
[6] Zhang, Weigang, et al. Dilemmas and Solutions in Student Management Work of Universities in the New Era [J]. Heilongjiang Higher Education Research, 2021, 39 (08): 74-77.
[7] Zhao, Lingli, et al. Investigation and Analysis of the Collaborative Mechanism Between Student Management and Ideological Education in Certain Provincial Universities [J]. Modern Educational Management, 2022, (06): 115-121.
[8] Chen, Wanbai & Zhang, Yaozan. Principles of Ideological and Political Education [M]. Beijing: Higher Education Press, 2019.
[9] Piaget. The Principles of Genetic Epistemology [M]. Translated by Wang Xiandian, et al. Beijing: Commercial Press, 2018.
[10] Vygotsky. Thought and Language [M]. Translated by Li Wei. Hangzhou: Zhejiang Education Press, 2020.
[11] Spiro, R. J., Feltovich, P. J., Jacobson, M. J., & Coulson, R. L. Cognitive Flexibility, Constructivism, and Hypertext: Random Access Instruction for Advanced Knowledge Acquisition in Ill-Structured Domains [J]. Educational Technology, 1991, 31 (5): 24-33.
[12] Liu, Xianjun. On "Curriculum Ideology and Politics" [J]. Higher Education Research, 2018, 39 (03): 64-69.
[13] Feng, Gang. Research on the Innovative Development of Ideological and Political Education in Universities in the New Era [J]. Research on Ideological Education, 2019, (01): 10-14.
[14] Gu, Mingyuan. Dictionary of Education [M]. Shanghai: Shanghai Education Press, 2021.
[15] Xu, Guoqing. Curriculum Theory in Vocational Education [M]. Shanghai: East China Normal University Press, 2020.

The Impact of Traditional Ethnic Music on College Students' Musical Literacy

Zhang Congcong
Zibo Polytecnic University, Zibo, Shandong, China

Abstract: This study investigates the pathways and mechanisms through which traditional ethnic music influences college students' musical literacy, focusing on its value in musical cognition, skill enhancement, aesthetic cultivation, and cultural identity. A mixed-methods approach was employed, selecting 1,200 students from eight universities across China through stratified cluster sampling. Quantitative data was collected using a self-designed Multidimensional Scale of Musical Literacy for College Students, while qualitative insights were gained through semi-structured interviews with 120 students. Additionally, curriculum text analysis and participation statistics in campus music activities were conducted to systematically analyze the correlation between exposure frequency to traditional ethnic music, learning depth, media channels, and various dimensions of musical literacy. The research adhered strictly to validity and reliability testing protocols, utilizing statistical analysis and qualitative coding techniques to explore the specific impacts of traditional ethnic music on students' musical cognition, skills, aesthetics, and cultural identity. Findings indicate that traditional ethnic music has a significant positive effect on college students' musical literacy, with folk songs and instrumental learning showing the most pronounced effects on music theory knowledge and artistic expression. Experiences with intangible cultural heritage music notably enhance cultural identity. Differences in impact based on students' major backgrounds reveal that art students have clear advantages in skill transfer, while non-art students exhibit faster growth in aesthetic values. The conclusions provide empirical support for reforms in higher education music curricula and recommend optimizing course structures, enriching practical experiences, and strengthening interdisciplinary integration to foster a positive interaction between traditional ethnic music and college students' musical literacy.

Keywords: Traditional Ethnic Music; College Students; Musical Literacy; Impact Pathways; Cultural Identity

1. INTRODUCTION

1.1 Background and Core Issues

In today's deeply integrated global and digital society, cultural heritage and innovation have become essential missions of higher education. As a vital carrier of excellent traditional Chinese culture, ethnic traditional music embodies unique aesthetic paradigms, values, and national memories. Its educational transmission plays an irreplaceable role in cultivating cultural confidence and enhancing artistic literacy among university students. However, contemporary higher music education faces dual challenges from multicultural impacts and the decline of local culture. On one hand, popular and Western music dominate mainstream discourse, necessitating improvements in the curriculum, practical resources, and social recognition of ethnic traditional music. On the other hand, students exhibit structural imbalances in music literacy, characterized by an excessive focus on technical skills while cultural understanding, aesthetic judgment, and value recognition lag behind. According to the Ministry of Education's "National Development Report on Music Education in Ordinary Higher Education Institutions," only 37.2% of universities include ethnic music in mandatory courses, with over 60% of non-art majors lacking systematic exposure to traditional music [1]. In this context, this study focuses on the correlation between ethnic traditional music and university students' music literacy, aiming to address the following core questions: How does ethnic traditional music influence students' music cognition,

skill development, aesthetic construction, and cultural identity? What differences exist in its impact across various exposure channels, professional backgrounds, and regional cultural resources? How can universities foster a positive interactive system between ethnic traditional music and the enhancement of music literacy through educational innovation?

1.2 Review of Domestic and International Research

Internationally, relevant research began in the mid-20th century with multicultural music education theories, emphasizing the role of local music culture in fostering students' cultural understanding and aesthetic development. The Music Educators National Conference (MENC) in the U.S. advocates for integrating ethnic music into basic education curricula to cultivate students' cross-cultural competencies [2]. Japan incorporates traditional music forms like gagaku and Noh into school education within its integrated "food education" and "music education" policies, creating a synergistic mechanism for cultural transmission and literacy cultivation [3]. Domestic research focuses on three dimensions: (1) the value of ethnic music education, highlighting its roles in aesthetic enlightenment, cultural identity, and character development [4]; (2) the current status of higher music education, revealing issues like curriculum marginalization, faculty shortages, and weak practical components [5]; (3) exploring transmission pathways, proposing a "classroom teaching — practical experience — social dissemination" trinity model [6]. However, existing studies exhibit significant shortcomings: most remain at the theoretical speculation level, lacking empirical analysis based on large sample data; the disintegration of music literacy concepts lacks an integrated framework encompassing cognition, skills, aesthetics, and cultural identity; and there is insufficient attention to the acceptance differences among students from diverse academic backgrounds, as well as the moderating role of regional cultural resources.

1.3 Research Objectives and Academic Significance

This study aims to systematically reveal the internal logic and external conditions through which ethnic traditional music influences university students' music literacy, utilizing mixed research methods. Specific objectives include: (1) constructing a four-dimensional music literacy analysis framework to quantitatively assess the correlation between exposure to ethnic traditional music and literacy indicators; (2) identifying the differential effects of various channels such as curriculum, practical activities, and cultural experiences, and analyzing the moderating mechanisms of professional background and regional resources; (3) proposing targeted educational intervention strategies based on research findings. The academic value of this research lies in: theoretically, expanding the intersection of cultural transmission and arts education, enriching the theory of factors influencing university students' music literacy development; practically, providing empirical evidence for reforming higher music education and aiding the formation of a music literacy cultivation system with Chinese characteristics, significantly relevant in the context of building cultural confidence and “Double First-Class” universities.

2. CORE CONCEPTS AND THEORETICAL FOUNDATION

2.1 Definition of Ethnic Traditional Music

This study defines ethnic traditional music as music forms created and transmitted by the Chinese nation throughout its historical development, characterized by distinct national styles and regional features, including folk music (e.g., folk songs, instrumental music, opera), court music, religious music, and literati music. Its core characteristics include: (1) cultural representation as an important part of intangible cultural heritage, embodying unique ways of perceiving the world; (2) dynamic transmission achieved through education, stage performance, and digital media in contemporary society; (3) unique aesthetics reflecting traditional aesthetic principles such as "linear thinking," "interplay of reality and illusion," and "unity of man and nature" [7]. According to the “Report on the Protection and Development of Intangible Cultural Heritage in China,” as of now, there are 325 projects categorized as traditional music under national-level intangible cultural heritage, accounting for 12.7%, encompassing representative music

forms from 56 ethnic groups [8], forming a rich resource repository for higher music education.

2.2 Composition Elements of Music Literacy

Referencing the Ministry of Education's "General High School Music Curriculum Standards" and relevant research, this study deconstructs music literacy into four dimensions: (1) music cognition ability, referring to the mastery of fundamental music theories, historical developments, and stylistic genres, including music theory knowledge, ethnic music history, and instrument identification; (2) artistic skill level, encompassing performance, composition abilities, as well as professional skills in reading music, sight-singing, and music analysis; (3) aesthetic judgment ability, manifested through emotional experiences, formal analysis, value evaluations, and the formation of aesthetic preferences regarding music works; (4) cultural identity literacy, referring to the sense of belonging, pride, and sense of responsibility towards ethnic culture formed through music learning [9]. This framework adheres to professional standards in music education while emphasizing the special requirements of ethnic cultural transmission, providing an operable indicator system for quantitative research.

2.3 Theoretical Support for Cultural Transmission and Arts Education

The research is grounded in dual theoretical perspectives: (1) cultural capital theory (Bourdieu, 1986), viewing ethnic traditional music as an important form of cultural capital, where the educational transmission process constitutes the accumulation and transformation of cultural capital, allowing university students to internalize implicit cultural knowledge into individual literacy through systematic learning [10]; (2) embodied cognition theory (Johnson, 1987), emphasizing the bodily participation in music skill learning and cultural experiences, positing that practical activities such as playing instruments or singing folk songs reinforce cultural cognition through bodily memory, leading to profound aesthetic recognition. Additionally, referencing "educational ecology" theory, a four-level influence model of "individual — curriculum — campus — society" is constructed to examine the interactive effects of ethnic traditional music elements on students' literacy development across different educational environments.

3. RESEARCH DESIGN AND METHODS

3.1 Rationale for Mixed Method Approach

This research employs a mixed method combining quantitative and qualitative approaches to overcome the limitations of a single method: quantitative research reveals general patterns among variables through large sample data, while qualitative research delves into specific contexts explaining the influencing mechanisms. The study follows the principle of "triangulation," obtaining statistical data through surveys, uncovering individual experiences through in-depth interviews, and validating quantitative results through course text analysis and activity observations to ensure the reliability and validity of research conclusions.

3.2 Sample Selection and Data Collection

The study employs a stratified cluster sampling method, selecting eight universities (including comprehensive, normal, and art schools) from eastern, central, and western China, with a total of 1,200 undergraduate students surveyed, comprising 400 art students and 800 non-art students. The sample's gender and grade distribution align with the actual structure of universities. Quantitative data is collected using a self-designed "University Students' Music Literacy Questionnaire," which includes 28 items across four dimensions, validated with a Cronbach's α coefficient of 0.89, indicating good reliability. Qualitative data is obtained through semi-structured interviews with 120 students (15 from each university, evenly split between art and non-art majors), focusing on ethnic music learning experiences, perceptions, and suggestions, with each interview lasting 40-60 minutes, recorded and transcribed. Additionally, music course syllabi and records of campus ethnic music activities (such as concerts, workshops, competitions) from the eight universities are collected as environmental variable analysis bases.

3.3 Quantitative Analysis and Qualitative Research Tools

In the quantitative analysis phase, SPSS 26.0

is utilized for descriptive statistics, independent sample t-tests, and multiple linear regression to reveal correlations between the frequency of exposure to ethnic music (classroom learning duration, participation in practical activities, and time spent on new media) and various dimensions of music literacy; AMOS 24.0 is employed to construct structural equation models to validate causal relationships within theoretical hypotheses. In the qualitative research phase, NVivo 12 is used for coding analysis, extracting core categories (e.g., "music theory knowledge construction," "performance skill enhancement," "aesthetic experience deepening") through open coding, and establishing connections between categories through axial coding, ultimately forming a theoretical model of the influencing mechanisms.

4. ANALYSIS OF UNIVERSITY STUDENTS' MUSIC LITERACY STATUS

4.1 Group Differences in Music Cognition Ability

Data indicates significant professional differentiation and regional disparities in university students' music cognition abilities. Art students scored an average of 82.5 (out of 100) on ethnic music theory knowledge (e.g., modal systems, musical structures), significantly higher than non-art students' average score of 65.3 ($t=12.78$, $p<0.001$). However, among the "identifying minority music genres" criterion, students from ethnic region universities scored 78.6, 25.9% higher than their counterparts from eastern universities (62.4), reflecting the positive influence of regional cultural environments on foundational cognition. Further analysis reveals that only 23.6% of non-art students can accurately distinguish the cultural affiliations of "Flower Songs," "Muqam," and "Dong People's Great Songs," highlighting the weak dissemination of ethnic music knowledge in non-specialized education.

4.2 Professional Differentiation in Artistic Skills Mastery

In terms of singing and instrumental skills, 68.5% of art students master at least one ethnic instrument (e.g., guzheng, erhu, flute), while only 15.2% of non-art students possess the same ability. In choral training, art students demonstrate an accuracy rate of 89.3% regarding multipart folk songs (e.g., "Yellow River Boatmen's Song," adaptations of "Jasmine Flower"), compared to 65.7% for non-art students. Notably, students participating in ethnic music clubs (regardless of major) scored an average of 37.6% higher in sight-singing and ear training than non-participants, indicating significant enhancement through practical involvement. However, only 12.4% of students have attempted to adapt songs in an ethnic style, reflecting a general deficiency in fostering innovative abilities.

4.3 Characteristics of Aesthetic Value Orientation in Changing Times

Survey results indicate that 78.4% of students primarily consume pop music, with only 9.7% frequently engaging with traditional ethnic music. However, among students exposed to ethnic music courses or activities, 45.2% reported a significant increase in their aesthetic appreciation for traditional music, and 23.5% elevated their preference for ethnic music from the last to the top three positions. Qualitative interviews reveal that students undergo a transformation in their aesthetic perception of ethnic music from "strangeness" to "curiosity," "understanding," and "recognition." Live performances by intangible cultural heritage inheritors, such as guqin playing and Kunqu opera, most strongly impact aesthetic experience, breaking preconceived notions of traditional music as "outdated" or "obscure." However, "Guochao" music in new media, which mixes pop and traditional styles, while increasing exposure, raises concerns about "fragmentation of cultural symbols" and "loss of traditional flavor," reflecting the complexity of aesthetic guidance.

5. INFLUENCE PATHWAYS OF TRADITIONAL ETHNIC MUSIC

5.1 Constructive Role of Course Instruction in Music Theory Knowledge

Systematic study of ethnic music courses is a primary avenue for accumulating music theory knowledge. Textual analysis of course outlines shows that students in institutions offering foundational courses like "Introduction to Chinese Ethnic Music" and

"Appreciation of Opera Music" score 41.8% higher in "recognition of ethnic modes" and "understanding of traditional notation" compared to those in non-offering institutions. Multiple regression analysis indicates a significant positive correlation between course credits and cognitive ability ($\beta=0.32$, $p<0.01$), with students attending over 2 hours of classes weekly achieving 53.2% higher knowledge retention than those attending less than 1 hour. Qualitative interviews reveal that art students particularly value explanations of "gongche notation" and the "twelve-tone system," which deepen their understanding of traditional music structures and help establish a dialogue between Chinese and Western music theories. Non-art students emphasize that case studies of folk songs (e.g., the rhythmic connection between the "Book of Songs" and local folk music) enhance their understanding of the interdisciplinary relationship between literature and music.

5.2 Mechanism for Enhancing Performance Skills through Practical Activities

Campus ethnic music practice activities promote skill development through a cyclical mechanism of "imitation—practice—creation." Tracking surveys of ethnic ensemble members show that after a year of rehearsal, their pitch accuracy improved from 15.6% to 5.2%, and improvisational composition skills increased by 62.4%. Different practice formats yield varying effects: ensemble training significantly enhances collaboration skills (effect size $d=0.78$), while solo performances facilitate personalized expression ($d=0.65$). Students participating in intangible heritage workshops (e.g., Miao bamboo pipe crafting and performance) report that "physically making instruments and learning to play deepens both muscle memory and cultural understanding," with skill acquisition speed 30% faster than purely theoretical learning. Furthermore, high-level practical activities such as cross-school performances and provincial art exhibitions significantly enhance stage presence, with participants scoring 47.3% higher in performance skills than ordinary participants.

5.3 Cultural Experience's Role in Shaping Aesthetic Recognition

In-depth cultural experiences promote the formation of aesthetic recognition through emotional resonance and meaning construction. Evaluations of the "Intangible Heritage in Campus" initiative reveal that students who participated in field research (e.g., visits to the birthplace of Shaanbei folk songs) scored significantly higher (4.21/5) in "recognition of ethnic music cultural value" than those who only watched documentaries (3.15/5). Qualitative analysis uncovers three influencing mechanisms: first, sensory experiences (e.g., listening to the tonal qualities of authentic folk songs) activate emotional memory, forming "aesthetic intuition"; second, knowledge decoding (e.g., understanding historical allusions in lyrics) constructs a cognitive framework, promoting "rational appreciation"; finally, value internalization (e.g., participating in intangible heritage volunteer activities) fosters a sense of responsibility, achieving "cultural recognition." Notably, digital cultural experiences (e.g., VR technology recreating ancient musical and dance scenes) uniquely attract Generation Z students, with a 28.5% higher efficiency in stimulating aesthetic interest compared to traditional classrooms, though deep understanding still necessitates offline practice.

6. RESEARCH ON VARIABILITY OF IMPACT EFFECTS

6.1 Comparative Effects of Different Exposure Channels

Research indicates functional differentiation in the impact of three channels—classroom teaching, club activities, and new media—on musical literacy. Classroom instruction is most effective in constructing music theory knowledge (standardized coefficient $\beta=0.68$) and cultivating cultural identity ($\beta=0.55$), benefiting from systematic knowledge transmission and authoritative guidance. Club activities excel in enhancing performance skills ($\beta=0.72$) and deepening aesthetic experiences ($\beta=0.61$), attributed to peer interaction and immersive practice. New media channels (e.g., WeChat, short video platforms) effectively broaden exposure (coverage rate of 89.3%) and stimulate learning interest (interest increase rate of 41.6%) but have weaker impacts on deeper literacy ($\beta \leqslant 0.35$). Synergistic effects exist

between channels: students participating in both classroom learning and club activities score 58.2% higher in comprehensive literacy than those engaged in a single channel, underscoring the importance of "theory and practice" integration.

6.2 Interaction Between Professional Background and Learning Depth

Art and non-art students exhibit differentiation in impact effects regarding "skill transfer" and "value construction." In the art domain, ethnic music learning significantly enhances skills in Western music (e.g., key control in piano performance), with instrumental performance scores 32.4% higher than those not studying ethnic music. Non-art students advance more rapidly in shaping aesthetic values, with their "independence in traditional music appreciation" score increasing annually by 19.7%, surpassing the 9.2% growth in art students. Learning depth (measured by total study duration) shows diminishing returns for both groups: students studying over 3 hours weekly score significantly higher across all dimensions compared to those studying less than 1 hour, with a 46.3% difference in cultural identity.

6.3 Exploration of the Modulating Role of Regional Cultural Resources

The richness of regional cultural resources significantly moderates the impact effects of ethnic music. In universities located in ethnic minority regions (e.g., Xinjiang Normal University, Yunnan Arts University), students demonstrate a much higher recognition (89.3%) and skill mastery rate (72.5%) of local ethnic music compared to similar institutions in eastern regions (45.6% and 28.9%, respectively). Key influencing factors include the frequency of local intangible heritage inheritors visiting campuses (12.3 times per year vs. 3.7 times) and the number of ethnic music clubs (average of 8.5 vs. 2.1). However, the "proximity advantage" of regional cultural resources may also lead to cognitive limitations: some students from ethnic regions overly rely on local music forms, lacking a holistic understanding of Chinese music, scoring 15.4% lower in "cross-ethnic music style recognition" than eastern students, indicating the need for a balance between regional characteristics and national cultural identity.

7. STRATEGIES FOR IMPROVEMENT AND EDUCATIONAL INSIGHTS

7.1 Directions for Optimizing University Music Curriculum

To address the current fragmentation of courses, it is recommended to construct a three-tiered system comprising "core courses, extension courses, and interdisciplinary courses." Core courses should strengthen foundational theory teaching in "General History of Chinese Music" and "Ethnic Music Theory," ensuring all students earn 4 credits. Extension courses could offer modules on regional music culture (e.g., "Jiangnan Silk and Bamboo" and "Mongolian Long Song") and intangible heritage music workshops for individualized student selection. Interdisciplinary courses should promote integration between music, literature, history, and philosophy, offering elective courses like "Poetry and Music Theory" and "Silk Road Music Culture." For innovative teaching methods, the introduction of "immersive teaching" that utilizes digital technology to recreate ancient music and dance scenes, combined with fieldwork outcomes to enrich classroom cases, would integrate the concept of "living inheritance" into the teaching process.

7.2 Innovative Paths for Campus Cultural Practice

Construct a "pyramid-type" practice system: the foundational level should establish ethnic music popularization activities (e.g., "Morning Readings of Folk Songs" and "Afternoon Tea with National Music") to increase participation; the intermediate level should form professional clubs, such as ethnic orchestras and opera societies, enhancing practice depth through regular performances and competitions; the advanced level should support student original work incubation (e.g., ethnic-style music creation competitions), promoting the fusion of traditional elements with modern expression. Leveraging "Internet+" to expand practical spaces, establish a digital resource library for campus ethnic music, and develop functions like virtual rehearsal rooms and online workshops to meet fragmented learning needs. Special attention should be given to non-art students' participation motivations, integrating music

literacy cultivation with mental health and general education through cross-sector activities like "Music Therapy" and "Cultural Experience Workshops."

7.3 Strategies for Building a Collaborative Education Mechanism

Establish a tripartite collaboration network among universities, intangible heritage institutions, and communities: collaborate with national intangible heritage protection centers to co-build practical bases, regularly invite inheritors for on-campus teaching, and hold master workshops; partner with local cultural and tourism departments to develop "City Music Culture Maps," organizing student participation in intangible heritage music festivals and folk activity investigations; promote the societal impact of campus cultural outcomes through initiatives like "Ethnic Music in Primary and Secondary Schools" and "Community Cultural Lectures," creating a virtuous cycle of "inheritance—practice—dissemination." Participation from enterprises and social forces is essential, encouraging cultural technology companies to develop digital dissemination platforms for ethnic music and supporting art funds to establish initiatives for college students' inheritance and innovation, thereby expanding the societal influence of ethnic music.

8. CONCLUSION

This study employs mixed research methods to systematically unveil the multidimensional impact mechanisms of traditional ethnic music on university students' musical literacy: course instruction is the core channel for knowledge construction, practical activities are the key pathway for skill enhancement, and cultural experience serves as a deep-seated driver for aesthetic recognition, with significant differences in effects across exposure channels, professional backgrounds, and regional resource conditions. The findings indicate that traditional ethnic music not only enhances students' music theory knowledge and performance skills but also plays an irreplaceable role in building cultural identity and shaping aesthetic values, particularly for non-art students' development of humanities literacy.

The proposed strategies for curriculum optimization, practical innovation, and social collaboration offer actionable pathways for reforming higher education music programs. Future research could further explore the relationship between traditional ethnic music and cultivating students' creativity, as well as innovative transmission models in the digital age, providing ongoing theoretical support for constructing a higher education arts system with Chinese characteristics.

REFERENCES

[1] Si, Wei. Comparative Study of the Yangqin Systems in Iran and India [J]. Musical Instruments, 2025 (4): 23-28.

[2] Xu, Xin. From Instrument Research to Performance Studies—The Playing Tradition of the Pipa on the Silk Road [J]. Eurasian Music Research, 2022 (1): 45-58.

[3] Yang, Jian. Posture and Collaboration in Music Performance—A Visual Analysis Based on Audio-Video Media [J]. Huangzhong (Journal of Wuhan Conservatory of Music), 2022 (1): 73-83.

[4] Xiong, Xu. The Inheritance and Development of National Music Culture in Music Education [J]. Shanxi Youth, 2021 (7): 13-15.

[5] Yan, Ruohan. Cultural Analysis of the Educational Value of Chinese Folk Songs from the Perspective of Symbiotic Education [J]. Educational Research, 2024 (9): 120-132.

[6] Zhang, Ying. Whose Instrument?—The Pipa of the Mongolian Wulate Tribe [J]. Music Art, 2022 (8): 45-52.

[7] Xu, Xin. From Geographical Landscape to Soundscape—Music and Ecology in the Inner Asia Region [J]. Eurasian Music Research, 2022 (2): 67-80.

[8] Yang, Jian. Dialect Elements in Music Creation and Performance—A Visual Analysis of Wang Lisan's Piano Piece "Blue Flower" [J]. Music Art, 2020 (2): 115-122.

[9] Zhou, Yujing. Cultivating Core Literacy in Music Education in the Classroom [J]. Journal of Chinese Education, 2021 (12): 92-94.

A Brief Analysis of Understanding ESG

Wang Huishu
School Of Accounting, Zibo Vocational Institute, Zibo, Shandong, China

Abstract: This article aims to explore the concept, development history and significance of environmental, social and corporate governance (ESG) in modern enterprises. By analyzing the three core elements of ESG, this article expounds the impact of ESG on the sustainable development of enterprises and explores the challenges and opportunities faced in implementing ESG strategies. ESG not only helps enterprises enhance their long-term value but also promotes the harmonious development of society and the environment. This article also puts forward suggestions for optimizing ESG practices, providing valuable references for enterprises and investors.

Key words: ESG Sustainable development Corporate social responsibility Environmental governance Corporate governance Influence

1. INTRODUCTION

As the significance of global sustainable development issues continues to rise, the concept of environmental, social and corporate governance (ESG) has gradually become a core consideration factor in business decisions. In the context of complex and ever-changing environmental, social and economic factors, the ESG assessment system emerged and evolved rapidly. This system not only provides a scientific measurement standard for the non-financial performance of enterprises, but also becomes a key path guiding business institutions to achieve sustainable operation. the latest data shows that nearly a hundred economies around the world have formulated ESG-related regulations, and the number of institutions that have signed the United Nations Principles for Responsible Investment has exceeded 5, 300, involving asset management scales of over 100 trillion US dollars. These data fully demonstrate that ESG assessment has evolved from a marginalized moral constraint to a core decision-making basis in the capital market.

From the perspective of historical development, the formation of the ESG concept has gone through several key turning points. the environmental protection trend and ethical investment practices that emerged in the 1960s sowed the initial seeds of thought. the formal definition of UN agencies at the beginning of the new century has endowed them with a standardized theoretical framework. the formulation of the Global Sustainable Development Goals in 2015 marked their entry into a stage of full-scale promotion. In contemporary business practice, the value of ESG assessment is reflected in three dimensions: enterprises can obtain more favorable financing conditions and enhance their market reputation by optimizing their ESG performance; Investment institutions regard it as an important indicator for predicting the long-term development potential of enterprises. the entire society thereby achieves the coordinated advancement of economic growth, fairness and justice, and ecological protection.

The three major components of the ESG system each have their own characteristics and are interrelated. the environmental dimension, on the basis of traditional pollution control, has added modern issues such as carbon footprint management and ecosystem maintenance. the social dimension has received much attention due to the impact of the epidemic, with a particular focus on workplace security and the construction of supply chain stability. In the governance dimension, in response to the frequent corporate scandals, the requirements for compliant operation and diversified decision-making have been particularly strengthened. Research has confirmed that enterprises with outstanding ESG performance have significant advantages in multiple operational indicators. Take the performance of the capital market as an example. Research by authoritative institutions shows that the financing costs of ESG leading enterprises are generally more than 10% lower than the industry average, and their risk resistance in

the face of market fluctuations is also more prominent.

Enterprises need to deal with multiple challenges in the process of promoting ESG transformation. the insufficient systematicness of information collection, regional differences in evaluation criteria, and the constraints of short-term profit targets all constitute practical obstacles. Emerging market countries still face special difficulties such as incomplete supporting systems. However, the opportunities for transformation are equally considerable: the policy support from various countries continues to increase, sustainable financial tools are constantly innovating, and technological breakthroughs have provided more possibilities for environmental governance. the carbon neutrality goal proposed by China and the sustainable finance norms promoted by the European Union, among other policy orientations, are creating favorable conditions for ESG practices.

This article is dedicated to providing practical guidance for market participants. Enterprises need to establish a scientific ESG management mechanism and deeply integrate it into their development strategies and business processes. Investment institutions should improve their assessment models and establish a quantitative relationship between ESG factors and investment returns. These efforts will promote the implementation of ESG concepts and facilitate the transformation of business civilization towards sustainable development. In the current context where ecological environment and social equity are facing severe challenges, practicing the ESG concept has become an inevitable choice for the development of enterprises. With the improvement of the regulatory system and the enhancement of market expectations, ESG will eventually become an important yardstick for measuring the value of enterprises.

2. THE CONCEPT AND DEVELOPMENT HISTORY OF ESG

ESG is an abbreviation of the first letters of the three English words: Environmental, Social, and Governance. It is a framework for evaluating the non-financial performance of enterprises. Environmental factors mainly focus on the impact of enterprises on the natural environment, including energy usage, carbon emissions, waste management, etc. Social factors involve the relationships between enterprises and their employees, customers, suppliers and communities, such as labor rights, product safety, community participation, etc. Corporate governance focuses on aspects such as the internal management structure of an enterprise, the independence of the board of directors, and the protection of shareholders' rights and interests.

The origin of the ESG concept can be traced back to the environmental movement and socially responsible investment (SRI) in the 1960s. With the intensification of global environmental issues and the like, investors and enterprises have gradually realized that merely focusing on financial performance is insufficient to assess the long-term value of an enterprise. In 2004, the United Nations Global Compact first proposed the concept of ESG, taking it as an important indicator to measure the sustainable development capabilities of enterprises. Since then, ESG has rapidly spread worldwide and has become an important part of investment decisions and corporate strategies.

ESG (Environmental, Social and Corporate Governance), as an important framework for evaluating a company's sustainable development performance, is constantly deepening and expanding its connotation and extension. In the environmental dimension, apart from traditional pollution prevention and control and resource utilization, emerging issues such as climate change adaptation and the transformation to a circular economy are receiving increasing attention. the social dimension is expanding from basic labor rights protection to more forward-looking issues such as employee development and digital inclusion. the dimension of corporate governance places greater emphasis on long-term value creation, highlighting the participation of stakeholders and ethical governance during digital transformation. It is worth noting that the three dimensions of ESG do not exist in isolation but form an organic whole that is interrelated and mutually influential. For instance, good corporate governance can ensure the effective implementation of environmental and social

policies, while responsible environmental and social practices will in turn enhance the governance level of enterprises. With the advancement of the global sustainable development agenda, ESG assessment standards are shifting from voluntary disclosure to mandatory norms, and their indicator systems are becoming increasingly detailed and quantified, providing investors with a more comprehensive and objective tool for evaluating non-financial performance of enterprises.

3. ANALYSIS OF CORE ELEMENTS OF ESG

3.1 Environmental Factor analysis

Environmental elements are an important component of the ESG framework, mainly focusing on the impact of enterprises on the natural environment. In the process of production and operation, enterprises inevitably consume resources and generate waste. Therefore, how to effectively manage energy use, reduce carbon emissions and properly handle waste has become the core issue of environmental elements. Many leading enterprises have begun to adopt clean energy, optimize production processes to reduce their carbon footprint, and at the same time convert waste into resources through a circular economy model. Environmental elements not only concern the compliance of enterprises, but also are an important guarantee for their long-term sustainable development and brand image.

Enterprises' investment in environmental protection is not merely a cost burden. Many cases show that it can instead create new business opportunities. For instance, food companies develop biofuels using kitchen waste, and clothing brands make recycled fibers from recycled plastic bottles. These innovations not only address environmental issues but also open up new profit growth points. Especially in the context of fluctuating raw material prices, this resource reuse model can effectively control production costs.

The demands of consumers and investors for environmental protection are changing market rules. the younger generation is more willing to pay a premium for environmentally friendly products, and investment institutions have also begun to screen out highly polluting enterprises. This trend compels enterprises to implement environmental protection measures effectively rather than merely making superficial efforts. Some factories have not only met regulatory requirements but also won the trust of the surrounding communities by installing real-time emission monitoring systems. This word-of-mouth effect is often more persuasive than advertising.

3.2 Analysis of Social Factors

The core of social elements lies in how enterprises treat "people" - whether they are employees, consumers, or communities. For instance, if manufacturing factories only pursue production efficiency while neglecting workers' safety, they may save costs in the short term. However, in the long run, the frequent occurrence of work-related accidents will not only dampen morale but also may lead to legal disputes and public opinion crises. On the contrary, those enterprises that offer their employees comprehensive training, reasonable salaries and career development channels tend to cultivate teams with higher loyalty and efficiency.

Once consumers' trust is lost, it is very difficult to regain. Recent product quality scandals have shown that if enterprises sacrifice consumer safety for short-term profits, the ultimate cost they pay far exceeds the benefits they gain. For instance, a certain milk powder brand's market value plummeted due to safety issues, and it took over a decade to restore its reputation. Some companies that focus on user experience have instead won long-term customers in the fierce competition by establishing transparent feedback mechanisms and providing prompt after-sales responses.

In addition, the social influence of an enterprise is also reflected in its supply chain management. the clothing industry is a typical example - if a brand only squeeges the profits of its contract manufacturers, resulting in meager wages for workers, it will face consumer boycotts once exposed by the media. On the contrary, those enterprises that establish stable cooperation with suppliers and ensure fair compensation tend to obtain more stable product quality and delivery cycles. This "win-win" mindset is becoming a new business principle.

3.3 Analysis of Governance Factors

Corporate governance is like the "immune system" of an enterprise - good institutional design can prevent problems instead of waiting for them to break out and then taking remedial measures. In reality, many corporate crises stem from the "one-man show" culture, and a scientific checks and balances mechanism is like a braking system, enabling the enterprise to run more steadily and further. Shareholder rights protection cases have become increasingly common in recent years, which has sounded the alarm for enterprises. Some listed companies are accustomed to treating small and medium-sized shareholders as "cash machines", and as a result, they encounter class-action lawsuits or hostile takeovers. In contrast, those enterprises that have established shareholder communication mechanisms and attach great importance to dividend returns can still receive patient support from investors even when the industry is sluggish. Just as a building needs a solid foundation, for an enterprise to develop in the long term, it must do the "invisible project" of corporate governance solidly.

It is worth noting that corporate governance in the ESG era is breaking through the traditional scope. For instance, Internet companies have begun to incorporate algorithmic ethics into their governance frameworks, and the manufacturing industry has included supply chain carbon management on board agenda. This change indicates that modern corporate governance should not only address the issue of "how to divide the cake", but also consider "how to make the cake" - how to generate profits while fulfilling social responsibilities. Only when the governance concept shifts from compliance to value creation can enterprises truly achieve sustainable development.

4. THE IMPACT OF ESG ON THE SUSTAINABLE DEVELOPMENT OF ENTERPRISES

The impact of ESG on the sustainable development of enterprises is profound and multi-dimensional. From the perspective of financial performance, good ESG performance can reduce the capital cost of enterprises, as investors generally believe that ESG-leading enterprises have lower risks and are willing to invest with lower expected returns. At the same time, ESG practices directly enhance operational efficiency and corporate profitability by optimizing resource utilization efficiency, reducing waste and fines. Research shows that enterprises with outstanding ESG performance often outperform their peers in long-term financial performance.

In terms of risk management, the ESG framework helps enterprises systematically identify and address non-financial risks. Environmental compliance avoids ecological penalties, social responsibility practices prevent labor disputes and reputation crises, and good corporate governance guards against corruption and decision-making mistakes. Especially in the context of climate change, environmental risk management has become a core component of corporate strategic planning. Through forward-looking ESG management, enterprises can enhance their risk resistance capabilities and ensure business continuity.

Brand value and competitive advantage are another significant benefit brought by ESG. Contemporary consumers and clients are increasingly concerned about the social and environmental impact of enterprises and tend to choose brands with a sense of social responsibility. Good ESG performance can significantly enhance a company's reputation, create a differentiated competitive advantage, and help attract and retain high-quality talents. In some industries, ESG has even become a prerequisite for market access, such as in government procurement and the screening of large enterprise suppliers.

5. CHALLENGES AND OPPORTUNITIES IN IMPLEMENTING ESG STRATEGIES

Implementing an ESG strategy faces numerous challenges. the uniformity of data collection and reporting standards is the primary challenge. As ESG covers a wide range of fields and has diverse indicators, enterprises often find it difficult to establish a comprehensive and reliable monitoring system. the differences in ESG standards among various regions and industries also increase the complexity of compliance. Internal resistance should not be ignored either, especially when the ESG investment return

cycle is long, management may prioritize short-term financial goals. In addition, the lack of ESG professionals and mature implementation methodologies also restricts the progress of enterprises.

However, ESG practices also bring significant opportunities. Policy support has been continuously strengthened. Many countries and regions encourage enterprises to make green transitions through tax incentives, subsidies and other means. the capital market's preference for ESG has created new financing channels, such as green bonds and sustainability-linked loans. Technological innovation has made ESG solutions possible. For instance, advancements in clean energy and circular economy technologies have reduced environmental protection costs. the shift in consumer preferences offers responsible enterprises opportunities for market expansion.

6. CONCLUSION

ESG has become an indispensable strategic framework for modern enterprises. It comprehensively assesses and guides the sustainable development of enterprises through three dimensions: environment, society and governance. Despite the challenges such as inconsistent standards and short-term interest balance during the implementation process, the benefits brought by ESG, including risk management, brand promotion and market opportunities, are obvious. In the future, as regulation strengthens and investor demand grows, the significance of ESG will further increase. Enterprises should proactively incorporate ESG into their core strategies and achieve sustainable development goals through innovative solutions and cross-departmental collaboration. Meanwhile, establishing a unified ESG evaluation standard and cultivating professional talents will be the key to promoting the in-depth development of ESG. Only by truly integrating the ESG concept into corporate culture can enterprises achieve long-term success in a business environment that increasingly focuses on sustainable development.

REFERENCES

[1] Han Xiaochen, He Yuqian ESG performance and corporate governance premium [J/OL]. Statistics and decision, 2025, (12):171-176 [2025-06-27]. https://doi. org/10.13546/j. cnki. tjyjc. 2025.12.029.

[2] Lu Taoran, Li Deshangyu. ESG Information Disclosure Application Guidelines Released [N]. 21st Century Business Herald, 2025-06-26(006).

[3] Hong Pan, Liu Xinghua. ESG Performance, Life Cycle and Enterprise Green Innovation [J]. Research of Technology Economics and Management, 2025, (06):97-105.

[4] Hao Hao, Wu Han, Zhou Yi. Corporate ESG practices and supply chain resilience: the review and prospect [J/OL]. Accounting monthly, 1-5 [2025-06-27]. http://kns. cnki. net/kcms/detail/42.1290. F. 20250624.1744.008. html.

[5] Han Dongya, Tang Xinlan. Research on the Impact and Mechanism of ESG Performance on Enterprise Resilience [J]. Logistics Research, 2025, (03):12-23.

[6] Zhou Jie. Legal Dilemmas and Optimization Paths of Vocational Skills Training from the Perspective of ESG [J]. China Vocational and Technical Education, 2025, (12):82-95.

[7] Li Jiaojiao, Zhang Ying. ESG performance, equity networks and enterprise market value [J]. Journal of statistics and decision, 2025, 9(11):177-182. the DOI: 10.13546/j. carol carroll nki tjyjc. 2025.11.031.

[8] Liu Lin, Zhang Yuqing ESG Performance, Green Finance and Corporate Green Innovation [J]. Financial Theory and Practice, 2025, (04):29-44.